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No. 09-

IN THE

Supreme Court of the United States

CORDIS CORPORATION,

Petitioner,

v.

BOSTON SCIENTIFIC CORP. and
BOSTON SCIENTIFIC SCIMED, INC.,

Respondents.

ON PETITION FOR A WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

PETITION FOR A WRIT OF CERTIORARI

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QUESTION PRESENTED

In a patent infringement case, is it proper to apply the doctrine of equivalents to cover a product that is outside the literal scope of the asserted patent claim where the allegedly equivalent feature was known to persons skilled in the art and known to the inventor at the time of patenting as a substitute for a limitation of the patent claim and the inventor could have drafted and applied for patent claims that cover products with the allegedly equivalent feature, but did not do so?

PARTIES TO THE PROCEEDING

Pursuant to Rule 14.1(b), the parties here and in the proceeding in the U.S. Court of Appeals for the Federal Circuit are listed.

Petitioner here and appellant in the court below is Cordis Corporation.

Respondents here and appellees below are Boston Scientific Corporation and Boston Scientific Scimed, Inc.

RULE 29.6 CORPORATE DISCLOSURE STATEMENT

Johnson & Johnson is the parent company of Cordis Corporation. Johnson & Johnson is a publicly held corporation and owns 10 percent or more of the stock of Cordis Corporation. No other corporation or publicly held company owns 10 percent or more of the stock of Cordis Corporation.

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IN THE SUPREME COURT OF THE UNITED STATES

No. 09-____

CORDIS CORPORATION,

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BOSTON SCIENTIFIC CORPORATION AND
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Respondents.

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

PETITION FOR WRIT OF CERTIORARI

Petitioner Cordis Corporation ("Cordis") respectfully petitions for a writ of certiorari to review the decision of the U.S. Court of Appeals for the Federal Circuit in favor of Boston Scientific Corp. and Boston Scientific Scimed, Inc. (collectively, "BSC"), holding that Cordis's BX Velocity and Cypher stents infringe claim 36 of U S. Patent No. 5,922,021 to David Jang under the doctrine of equivalents. The Federal Circuit affirmed the district court's judgment of infringement, and rejected a challenge to the applicability of the doctrine of equivalents in this case.

OPINIONS BELOW

The opinion of the court of appeals (App., *infra*, 1a-36a) is reported at 561 F.3d 1319. The order of the court of appeals denying Petitioner's petition for rehearing and rehearing en banc (App. 98a-100a) is unreported. The district court's post-trial orders are at App. 37a-38a and App. 39a-46a, and its memorandum opinion is at App. 47a-97a.

JURISDICTION

The court of appeals entered judgment on March 31, 2009. App. 1a. A timely combined petition for rehearing and rehearing *en banc* was denied on June 26, 2009. App. 98a-100a. This Court has jurisdiction pursuant to 28 U.S.C. § 1254(1).

STATUTORY PROVISIONS INVOLVED

Section 112, ¶ 2 of the patent statute, 35 U.S.C. § 112, ¶ 2, states:

> The specification [of a patent] shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Section 271(a) of the patent statute, 35 U.S.C. § 271(a), states:

> Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.

STATEMENT OF THE CASE

A. Introductory Statement

This case presents an important issue on which this Court's decisions are in tension and Federal Circuit precedent is contradictory.

The issue is whether the doctrine of equivalents ("DOE") may be applied in patent cases to cover a product with a feature that was known at the time of patenting to the inventor and to other persons skilled in the art as a substitute for a limitation of the patent's claims, where the inventor could have drafted claims that would literally have covered products with the allegedly equivalent feature, but did not do so.

This issue is important because, while the patent statute requires a patent applicant to "distinctly claim[ ] the subject matter which the applicant regards as his invention," 35 U.S.C. § 112, ¶ 2, the DOE expands those claims and creates uncertainty about the scope of patent protection. *See Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 732 (2002). That uncertainty is heightened where, as here, the law is inconsistent and unclear. In such circumstances, it becomes all the more "difficult to determine what is, or is not, an equivalent to a particular element of an invention." *Id.* This heightened uncertainty can impede legitimate competition, with unfortunate consequences for the public. "If competitors cannot be certain about a patent's extent, they may be deterred from engaging in legitimate manufactures outside its limits, or they may invest by mistake in competing products that the patent secures. " *Id.*

At bottom, this case raises a question of great importance: Where the patentee and those of skill in the art know that a particular feature *not* claimed in the patent is

interchangeable with one that the patentee has distinctly claimed, may the patentee later in litigation expand the scope of the patent under the DOE to encompass that unclaimed feature, or may the public rely on the fact that the feature is unclaimed in order to develop useful devices? One answer grants the patentee greater patent protection than he claimed, while leaving the public uncertain about the scope of the patent; the other favors competition and limits the patent's scope to what the patentee actually described in his claims.

Prior decisions of this Court do not answer this question. In nineteenth century cases and continuing into the middle of the twentieth century, this Court treated the DOE as applicable for features that were known at the time of patenting as interchangeable substitutes for an element that is described in the patent claim, while explicitly stating that the DOE is *not* applicable for substitutes that were unforeseeable or not known as interchangeable at the time the patent issued. *See, e.g.*, *Gould v. Rees*, 82 U.S. 187, 193 (1872); *Fuller v. Yentzer*, 94 U.S. 299, 300 (1876); *Gill v. Wells*, 89 U.S. 1, 13 (1874); *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1, 13 (1946).

However, recognizing important changes in the law, this Court effectively reversed course in its 2002 decision in *Festo*, 535 U.S. 722, and placed the burden of precision in language on the patentee. In *Festo*, this Court reasoned that "[t]he patentee, as the author of the claim language, may be expected to draft claims encompassing already known equivalents." *Id.* at 740; *see also id.* at 741 ("The patentee must show that at the time of the amendment one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent."). Thus, unlike *Gould* and related cases, *Festo* holds that there is no reason to allow the DOE to encompass interchangeable substitutes known at the time the patent claim was drafted. Meanwhile, also unlike *Gould* and related

cases, *Festo* accepts the proposition that the DOE can be extended to equivalents that were unforeseeable at the time of patenting, but that are shown to be equivalent at the time of infringement. 535 U.S. at 740-41.

Festo addresses only claim elements that were narrowed by amendment during prosecution of a patent application. However, its logic applies with equal force for claim elements that were not amended. For both amended and un-amended claim elements, "[t]he patentee, as the author of the claim language, may be expected to draft claims encompassing already known equivalents." *Id.* at 740.

Although this Court has not had occasion to consider whether *Festo*'s logic applies to unamended claim elements, the Federal Circuit has developed two contradictory lines of precedent on the issue.

Consistent with *Festo*'s reasoning, some Federal Circuit decisions place the onus on the patentee to draft patent claims that cover alternatives known at the time of patenting, foreclosing resort to the DOE for such features if the claims as drafted do not literally cover them. *See Sage Products, Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997) ("as between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure."); *Freedman Seating Co. v. American Seating Co.*, 420 F.3d 1350, 1360-62 (Fed. Cir. 2005).

As these cases recognize, it is reasonable to expect patentees to draft claims that literally cover known alternatives if they consider those alternatives to be within the scope of their invention and want them to be within the scope of the patent. *See Festo*, 535 U.S. at 740. This is

especially true where there are no "shortcomings of language" that would have "prevented [the patentee] from describing the alleged equivalent when it [drafted] the claim." *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359, 1370 (Fed. Cir. 2003).

Other Federal Circuit decisions follow the opposite approach, based on the earlier cases from this Court. They place the onus on the public to predict whether an unclaimed feature that was known at the time of patenting to be interchangeable with an element of the claim, but that was not claimed, will later be treated as an equivalent of the claim element under the DOE. *See, e.g., Overhead Door Corp. v. Chamberlain Group, Inc.*, 194 F.3d 1261, 1270 (Fed. Cir. 1999); *Lifescan, Inc. v. Home Diagnostics, Inc.*, 76 F.3d 358, 362 (Fed. Cir. 1996).

Resolving the conflicting lines of Federal Circuit precedent on this issue is a matter of considerable importance. In our claims-based patent system, "[t]he claims 'measure the invention.'" *General Electric Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 369 (1938), quoting *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 419 (1908). The DOE extends the patent grant beyond what the inventor has "distinctly claim[ed] [as] the subject matter ... [of] his invention" under § 112, ¶ 2, to encompass substantial equivalents that are not described in the patent claims.

As a result, the DOE "renders the scope of patents less certain," *Festo*, 535 U.S. at 732, because "[i]t may be difficult to determine what is, or is not, an equivalent to a particular element of an invention." *Id.* This uncertainty can redound to the public's detriment. "A zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims would discourage invention only a little less than unequivocal foreclosure of the field." *United*

Carbon Co. v. Binney & Smith Co., 317 U.S. 228, 236 (1942).

This "zone of uncertainty" is enlarged where there are contradictory lines of precedent on how the DOE should be applied. Reducing that uncertainty will benefit both the public and patentees by avoiding unnecessary disputes about the scope of patent protection while promoting legitimate competition. *See Festo*, 535 U.S. at 732; *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996); *Merrill v. Yeomans*, 94 U.S. 568, 573-74 (1876).

B. The Technology at Issue in This Case

The technology in this case involves coronary stents, which cardiologists use for treating coronary artery disease.

Coronary artery disease involves the narrowing of the coronary arteries, which restricts or blocks the flow of blood to the heart. This can lead to serious consequences, including a heart attack or death.

Stents are small, cylindrical, lattice-like structures. Generally, they are made of metal. They are implanted in the coronary arteries to maintain an open passageway in the artery for the flow of blood.

Unlike open-heart surgery, the implantation of a stent is a minimally invasive procedure. Typically, the physician makes a small incision in the patient's groin and then inserts and delivers the stent on a balloon catheter through the patient's vascular system to a portion of a coronary artery that has been narrowed by disease. Once the stent reaches the desired location in a diseased artery, the physician expands the balloon on which the stent has been mounted. Expansion of the balloon expands the stent to a desired diameter. The balloon is then deflated and withdrawn. The stent stays in

place in the artery and keeps its expanded diameter to maintain an open passageway for the flow of blood.

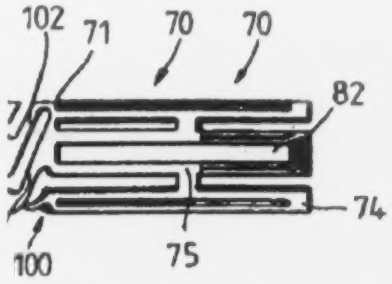
C. The Existing State of the Art

In this case, BSC has accused Cordis of infringing U.S. Patent No. 5,922,021 to David Jang (the "'021 patent"). The '021 patent issued from an application that Dr. Jang filed with the Patent Office on April 25, 1997. The '021 patent claims the benefit of the earlier filing date of a provisional application that he filed on April 26, 1996.

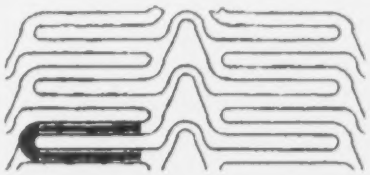
By April 1996, stent technology was a crowded field. Stents already were standard treatment for coronary artery disease, and the basic principles of stent design were well established.

Known stents typically combined two basic building blocks: (1) zig-zag rings that expand in diameter to keep the artery open for the flow of blood; and (2) connectors that link adjacent rings and provide flexibility so that the stent can readily be delivered through curved arteries. There were known variations for the zig-zag rings and for the configuration of the connectors.

In particular, there were two known alternatives for the shape of the zig-zag rings. They could have angular corners (as in U.S. Patent No. 5,102,417 to Palmaz) or semicircular arcs and no corners (as in WO 96/03092 to Israel et al.).



U.S. Patent No. 5,102,417
to Palmaz, Fig. 7

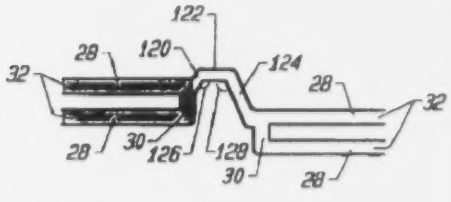


WO 96/03092
to Israel et al., Fig. 7

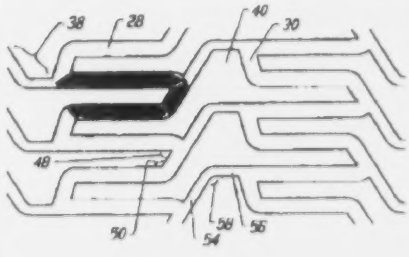
Whether to use rings with or without corners was a matter of design choice. Both alternatives were known to the inventor.

D. The Invention that is Described and Claimed in the '021 Patent

The specification of the '021 patent describes and depicts various stent designs. All of those embodiments have zig-zag rings and all of the zig-zag rings have angular corners. *E.g.*:



'021 Patent, Fig. 10D



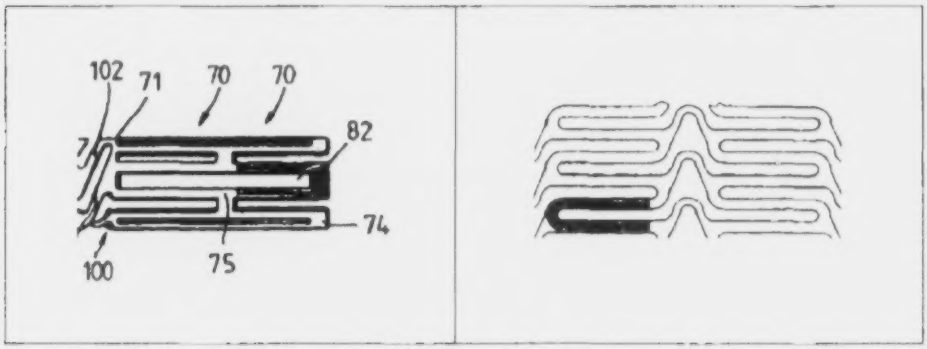
'021 Patent, Fig. 2B

In some embodiments, the corners form right angles. *E.g.*, '021 patent at col. 15, lines 49-55 ("[i]n the design of FIGS. 10D and 10E" the "[j]oining struts 30 are at *right angles* to the expansion struts 28 they connect.") (emphasis

added). In the other embodiments, the corners form acute and obtuse angles. *E.g.*, '021 patent at col. 6, line 66 – col. 7, line 3 ("Referring now to FIGS. 2A and 2B, joining struts 30 of stent 10 are seen to extend at an angle to the expansion struts 28, *forming a narrow [i.e., acute] angle* 48 with one expansion strut 28 ... and *a wide [i.e., obtuse] angle* 50 with the other expansion strut 28 of an expansion strut pair 32.") (emphasis added).

Although zig-zag rings with circular arcs were known in the art as an alternative to zig-zag rings with angular corners, the '021 patent does not describe or depict *any* embodiment that has circular arcs instead of corners.

Meanwhile, the patent specification makes clear that the inventor knew that rings with circular arcs could be used as a substitute for rings with corners. In the section of the patent specification entitled "Background of the Invention," the inventor cited two examples of "conventional stents" that were known in the art. One of these examples was U.S. Patent No. 5,102,417, shown on the left below, which had zig-zag rings with angular corners. The other example was WO 96/03092, the so-called "Brun patent," shown on the right below, which had zig-zag rings in the shape of circular arcs with no corners:



Although the inventor was aware that a stent's zig-zag rings could either have angular corners or circular arcs and no corners, he viewed corners as desirable and thus chose to make "corners" an explicit requirement of claim 36.[1] Angular corners and circular arcs have different expansion characteristics and provide different places for attachment of other stent components. For purposes of his invention, Jang preferred angular corners. Claim 36 was the only patent claim that BSC asserted against Cordis in this case. Claim 36 (and claim 23 from which it depends) requires sixteen "corners."

Consistent with this Court's decision in *Markman*, 517 U.S. 370, the district court construed the term "corner" prior to trial, as meaning the "place where two surfaces meet ***to form an angle***." The "corner" limitation, as construed by the district court, thus describes the stents that are described and depicted in the specification of the '021 patent, in which the zig-zag rings have the angular shape of corners. The term "corner" does *not* describe the other known alternative – *i.e.*, stents in which the zig-zag rings have semicircular arcs and no corners. Thus, stents without corners, as known in the art, are *not* within the literal scope of claims 23 and 36 and do *not* literally infringe those claims.

If the inventor had wanted these claims to cover stents without corners, it would have been easy enough for him to have drafted them with that scope. In fact, the inventor did precisely that for claims 1-22 of the '021 patent. Claims 1-22 do not include the "corners" limitation, and thus are broad enough to cover both alternatives that were known

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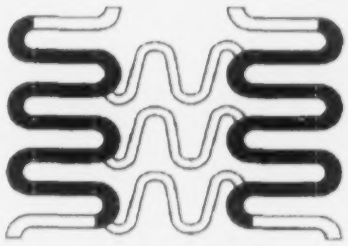
[1] Claim 36 is a dependent claim, that is, it depends from – and incorporates the limitations of – claim 23. Claim 23, in turn, includes explicit claim limitations requiring that zig-zag rings (or "expansion columns") have expansion struts that are coupled to joining struts at "corners." *See* col. 20, lines 5-23 and lines 42-60.

in the art, *i.e.*, stents with and without corners. Asserted claim 36, however, is drafted in a narrower manner, as limited to stents with "corners."

E. The Accused Devices

In this case, BSC alleged that Cordis's BX Velocity and Cypher stents infringe one claim of the '021 patent – claim 36. BSC admits that Cordis's stents do not infringe other claims of the '021 patent, such as claim 1, that lack the "corners" limitation.

The Cordis stents share the same design, as shown on the right. Both have zig-zag rings (or "expansion columns") made up of "expansion strut pairs" in which expansion struts (shown in red) are coupled to joining struts (shown in blue). The joining struts have the shape of semicircular arcs. The semicircular arcs do not form angular "corners" where they meet the expansion struts.



F. District Court Proceedings

1. The Trial

In order to prove literal infringement, BSC needed to show by a preponderance of the evidence that Cordis's stents have every limitation or requirement of claim 36 under the district court's claim construction. Thus, BSC needed to show, *inter alia*, that the expansion struts in Cordis's stents are coupled to the joining struts at "corners," *i.e.*, "place[s] where two surfaces meet to form an angle." The jury found that BSC failed to make this showing and returned a verdict that Cordis's stents do *not* literally infringe claim 36.

Although the jury found no literal infringement, it nonetheless concluded that Cordis's stents infringe the "corners" limitation under the DOE.

2. Cordis's Renewed Motion for JMOL

After the trial, Cordis renewed its earlier motion for judgment as a matter of law (JMOL) that its stents do not infringe the "corners" limitation under the DOE. Cordis explained, as described above, that stents with and without corners both were known in the art. Cordis further demonstrated that the inventor was aware of both types of stents when he applied for the '021 patent and nonetheless chose to limit claim 36 to stents with "corners." Under these circumstances, Cordis argued, the patentee cannot contend that the claim covers known but unclaimed alternatives under the DOE.

The district court denied Cordis's motion without addressing Cordis's argument that the DOE could not be applied to cover an unclaimed alternative when the inventor and those in the field were well aware of that alternative at the time of patenting.

G. Cordis's Appeal to the Federal Circuit

As it had done in the district court, Cordis relied on *Freedman Seating*, 420 F.3d at 1360-62, and *Sage Products*, 126 F.3d at 1425, which hold that where two alternatives are known in the art and known to the inventor at the time of patenting, and the inventor nonetheless drafted his claim so as to limit it to one of those known alternatives, the patentee cannot later rely on the DOE to cover the other known alternative. Thus, Cordis argued on appeal that "[w]ith both types of stents known in the art and known to the inventor, '[a] skilled patent drafter would foresee the limiting potential of the ['corners'] limitation' and could have drafted a claim

without the "corners" limitation if he 'desired broad[er] patent protection.'" (quoting *Freedman Seating*, 420 F.3d at 1360, which in turn quotes *Sage Products*, 126 F.3d at 1425). Cordis argued that "in assessing the bounds of the claim," competitors "were 'justified'" in relying on the fact that the inventor was aware of both alternatives but limited claim 36 to stents with "corners."

The Federal Circuit affirmed the judgment of infringement under the DOE. In doing so, it did not attempt to distinguish this case from its contrary decisions in *Freedman Seating*, 420 F.3d at 1360-62, and *Sage*, 126 F.3d at 1425. It focused instead on a different argument made by Cordis – that application of the DOE in this case vitiated the "corners" requirement – and it rejected that argument (A17a):

> Although we have "refused to apply the doctrine [of equivalents] ... where the accused device contained the antithesis of the claimed structure," ... the circular arcs of [Cordis's stents] are not antithetical to the "corners" limitation in claim 36 of the '021 patent. Boston Scientific's theory that the circular arcs [of Cordis's stents] are equivalent to the "corners" in claim 36 does not vitiate the "corners" limitation, because it does not "render[ ] the pertinent limitation meaningless," *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1359 (Fed. Cir. 2005), or "effectively eliminate that element in its entirety," *Warner-Jenkinson*, 520 U.S. at 29.

The Federal Circuit did not explain why this case warrants a result different from *Freedman Seating* and *Sage*, which hold that the DOE is inapplicable in the circumstances presented here.

REASONS FOR GRANTING THE PETITION

I. There is a Need for Clarity on When the DOE Should Apply to Known Substitutes for a Claim Element

More than a century ago, this Court stated that "nothing can be more just and fair, both to the patentee and to the public, than that the former should understand, and correctly describe, just what he has invented and for what he claims a patent." *Merrill v. Yeomans*, 94 U.S. 568, 573-74 (1876). Clarity as to "[t]he limits of patent protection" is important, both "for the protection of the patentee" and to avoid chilling competitive activities by others. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996), quoting *General Electric Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 369 (1938).

In particular, there is a strong interest in a clear demarcation of the boundary that separates the products that are covered by a particular patent (which may not be used without the inventor's permission) from those not covered by the patent (which the public may freely use).

> Otherwise, a "zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims would discourage invention only a little less than foreclosure of the field," *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236, 63 S. Ct. 165, 170, 87 L.Ed. 232 (1942), and "[t]he public [would] be deprived of rights supposed to belong to it, without being clearly told what it is that limits these rights." *Merrill v. Yeomans*, 93 U.S. 568, 573, 24 L.Ed. 235 (1877).

Markman, 517 U.S. at 390. In this regard, "[i]t has long been understood that a patent must describe the exact scope of an invention and its manufacture" in order to "secure to [the patentee] all to which he is entitled, [and] to apprise the public of what is still open to them." *Id.* at 373, quoting *McClain v. Ortmayer*, 141 U.S. 419, 424 (1891).

To provide clarity on these issues, § 112, ¶ 2 of the patent statute, 35 U.S.C. § 112, ¶ 2, requires that a patent conclude with one or more claims, "particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." "The claims 'measure the invention.'" *General Electric Co. v. Wabash Appliance Co.*, 304 U.S. 364, 369 (1938), quoting *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 419 (1908). Much as a deed defines the boundaries of real property, *In re Vamco Machine & Tool, Inc.*, 752 F.2d 1564, 1577 n.5 (Fed. Cir. 1985), the claims of a patent define the "metes and bounds" of the patent's scope. *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989).

The DOE "remain[s] a firmly entrenched part of the settled rights protected by the patent," *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 733 (2002), and extends patent protection beyond what the inventor has "distinctly claim[ed]" as the subject matter of the invention under § 112, ¶ 2. In doing so, the DOE "blurs the line of demarcation between infringing and non-infringing activity," and "creates a zone of uncertainty" that may lead to "foreclosure of competitive activity within the penumbra of each issued patent claim." *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (1997).

As this Court explained in *Festo*, "the doctrine of equivalents renders the scope of patents less certain" because "[i]t may be difficult to determine what is, or is not, an

equivalent to a particular element of an invention." 535 U.S. at 732. And "[i]f competitors cannot be certain about a patent's extent, they may be deterred from engaging in legitimate manufactures outside its limits, or they may invest by mistake in competing products that the patent secures." *Id.*; *see also Warner-Jenkinson*, 520 U.S. at 29 ("There can be no denying that the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notice functions of the statutory claiming requirement.").

The potential for conflict between the DOE and the "definitional and public-notice functions of the statutory claiming requirement," *id.*, 520 U.S. at 29, becomes all the more acute where, as here, there are contradictory lines of precedent. The existence of contradictory Federal Circuit cases – some holding that the DOE is inapplicable to structures that were known at the time of patenting as substitutes for the patented invention, and others reaching the opposite result – impedes the public's ability to determine whether a known interchangeable feature is available for use without restriction or will be treated as an equivalent under the DOE. There is a strong interest in minimizing this zone of uncertainty. *Markman*, 517 U.S. at 390; *General Electric*, 304 U.S. at 369; *McClain*, 141 U.S. at 424.

II. This Court's Decisions Are in Tension

A. This Court's Early Cases

More than a century ago, in *Gould v. Rees*, 82 U.S. 187 (1872), this Court drew a sharp distinction for purposes of the DOE between interchangeable substitutes known at the time of patenting and those that were not known as interchangeable at the time of patenting. Under the approach set forth in *Gould*, the DOE applies in the former situation and is inapplicable in the latter.

Thus, *Gould* stated that the DOE is applicable where the alleged equivalent was "well known *at the date of the patent* as a proper substitute for the [feature described in the claim] ...." *Id.* at 194 (emphasis added). Conversely, *Gould* stated that the DOE is *not* applicable where "the ingredient substituted for the [ingredient described in the claim] was a newly discovered one, or even an old one performing some new function, and was not known *at the date of the plaintiff's patent*, as a proper substitute for the ingredient withdrawn ...." *Id.* at 193 (emphasis added).

Other decisions took the same approach. In *Gill v. Wells*, 89 U.S. 1 (1874), this Court stated:

> [I]t is clear law that *the substituted ingredient cannot be regarded as a legal equivalent*, within the meaning of the Patent law, *unless it* performs substantially the same function as the ingredient withdrawn, and *was well known as such an ingredient at the date of the original patent and as a proper substitute* for the ingredient which was included in the patented combination.

Id. at 30 (emphasis added); *see also Fuller v. Yentzer*, 94 U.S. 299, 300 (1876) ("Modifications or alterations in an invention consisting in a combination of old ingredients, which merely substitutes another old ingredient for one of the ingredients in the patented combination, is an infringement of the patent, if the substitute performs the same function *and was well known at the date of the patent as a proper substitute* for the one omitted from the patented invention; but the rule is otherwise if the ingredient substituted is a new one, or performs a substantially different function, or was not known at the date of the patent as a proper substitute for the one omitted from the patent.") (emphasis added).

Halliburton Oil Well Cementing Co. v. Walker, 329 U.S. 1 (1946), followed the same approach when it stated that a party accused of infringement can defeat an allegation of infringement under the DOE by showing that the feature of the allegedly infringing device was "not known at the date of ... [the patent] as a proper substitute for the [claimed feature]" or was "actually invented after the date of the patent." *Id.* at 13.

Likewise, *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605 (1950), implicitly accepted the rule of the nineteenth century cases. It described known interchangeability as an "important factor" for application of the DOE:

> An important factor is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was.

Id. at 609. On the facts before it, *Graver Tank* upheld the application of the DOE in view of evidence of "disclosures of the prior art [that] made clear that manganese silicate was a useful ingredient in welding compositions." *Id.* at 612.

B. *Warner-Jenkinson*

Warner-Jenkinson Co. v. Hilton-Davis Chem. Co., 520 U.S. 17 (1997), was the first step in changing the analysis. This Court reaffirmed that "knowledge of the interchangeability between claimed and accused elements" is relevant in a DOE analysis "for what it tells the fact-finder about the similarities or differences between those elements." *Id.* at 37, citing *Graver Tank*, 339 U.S. at 609.

Whereas earlier cases had held that the DOE is not available for equivalents that become known after the patent issued, *Warner-Jenkinson* held that "the proper time for evaluating equivalency – and thus knowledge of interchangeability between elements – is at the time of infringement, not at the time the patent was issued." 520 U.S. at 37. Implicit in this analysis is an *expansion* of the scope of equivalents from this Court's earlier cases. The earlier cases limited the DOE to features that were known to be interchangeable at the time of patenting. *A fortiori,* those features will (at least ordinarily) also be known to be interchangeable at the time of infringement.

C. *Festo*

Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722 (2002), represents a fundamental shift in thinking on the DOE, away from the approach followed in earlier cases.

Festo teased apart the two time periods implicitly embraced by *Warner-Jenkinson,* and reversed the nineteenth century mode of analyzing each period. Thus, it affirms the propriety under *Warner-Jenkinson* of basing a finding of equivalence on an interchangeable feature developed *after* the invention and not foreseeable to the patentee. But it calls into question the earlier rule permitting a patentee to forego claiming a known equivalent and later to assert the patent against a third-party who utilizes that known, and unclaimed, equivalent.

Festo addresses situations in which the DOE is asserted for a claim element that was narrowed by an amendment during patent prosecution. The Federal Circuit had held that there is an absolute bar against asserting the DOE for claim elements that are so amended. In *Festo*, this Court rejected an "absolute bar" in favor of a more flexible

approach that treats such amendments as presumptively barring the application of the DOE. This Court held that a patentee can overcome the presumption by demonstrating, *inter alia*, that the alleged equivalent was unforeseeable at the time the amended claim language was submitted to the Patent Office. To come within the scope of this "unforeseeability" exception, "[t]he patentee must show that *at the time of the amendment* one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent." *Id.* at 741 (emphasis added). This approach is reasonable because *"[t]he patentee, as the author of the claim language, may be expected to draft claims encompassing readily known equivalents." Id.* at 740 (emphasis added).

Although *Festo* by its terms applies only to claim elements that were narrowed by an amendment during patent prosecution, its logic is equally applicable to all claim limitations. For all claim limitations, it is perfectly reasonable to expect the patentee "to draft claims encompassing readily known equivalents," *id.*, if the patentee considered them to be within "the subject matter of the invention." Any other result would have the perverse effect of foreclosing the application of the DOE for equivalents that were known as interchangeable when a claim limitation was amended, while leaving the DOE fully available for equivalents that were known as interchangeable at the time a claim was originally drafted. No logic or policy supports any such distinction.

III. Federal Circuit Law is Inconsistent

The tension in this Court's decisions is mirrored in two strands of Federal Circuit cases that reach inconsistent results on this issue. Supreme Court review would help in bringing clarity to this important issue.

A. Cases Holding that the DOE May Not Be Applied to Cover Substitutes that the Inventor Knew of, But Did Not Claim

In some cases, both before and after *Festo*, the Federal Circuit has held that where the inventor chose to limit his claims to only one of two or more structures known at the time as interchangeable, then the public may justifiably rely on that choice in assessing the scope of patent protection. Under the reasoning of these cases, the patentee may not subsequently assert that other structures that were known at the time as interchangeable, which the inventor was aware of but chose not to claim, are within the scope of the patent under the DOE.

For example, in *Sage*, 126 F.3d at 1425, the Federal Circuit explained that where substitutes are known in the art and known to the inventor at the time of patenting, "[a] skilled patent drafter would foresee the limiting potential" of drafting claims that are limited to only one of those known substitutes. In such circumstances, "[n]o subtlety of language or complexity of the technology, nor any subsequent change in the state of the art, such as later-developed technology, obfuscate[s] the significance of this limitation at the time of its incorporation into the claim."

Thus, where more than one alternative design is known in the art, nothing prevents an inventor from applying for a patent that covers both known alternatives – if a patent with that scope is desired: "If Sage desired broad patent protection for any container that performed a function similar to its claimed container, it could have sought claims with fewer structural encumbrances." *Id.* If an inventor applies for a patent that covers known alternatives, the Patent Office then has the opportunity to "fulfill[ ] its statutory role in helping to ensure that exclusive rights issue only to those

who have, in fact, contributed something new, useful, and unobvious." *Id.*

The Federal Circuit reasoned in *Sage* that inventors who choose not to apply for a patent that covers a known alternative should not be able to seek that scope of patent protection in a later infringement suit (*id.*):

> Instead [of applying for a patent that would cover known alternatives], Sage left the PTO with manifestly limited claims that it now seeks to expand through the doctrine of equivalents. However, as between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure.

Freedman Seating, 420 F.3d at 1362, applies the same reasoning:

> The patentees ... stated that they were aware of other types of four bar mechanisms. .... Yet, they chose to specifically limit the claims to slider-crank mechanisms vis-à-vis the "slidably mounted" moveable end limitation. Members of the public were therefore justified in relying on this specific language in assessing the bounds of the claim. Accordingly, we think that to now say the claims include other four bar mechanisms under the doctrine of equivalents would unjustly undermine the reasonable expectations of the public.

More recently, in *Glaxo Wellcome, Inc. v. Impax Labs., Inc.*, 356 F.3d 1348 (Fed. Cir. 2004), a post-*Festo* opinion, the Federal Circuit rejected the view that *Festo*'s holding should be limited to the failure to include known equivalents when making a narrowing amendment. "[R]ead in context, the Supreme Court in *Festo* neither excuses an applicant from failing to claim 'readily known equivalents' at the time of application nor allows a patentee to rebut the *Festo* presumption by invoking its own failure to include a known equivalent in its original disclosure. Instead, the critical inquiry is whether [the patentee] could have foreseen sustained release agents for bupropion other than HPMC *at the time of filing or amendment.*" *Id.* at 1355 (emphasis added).

B. Cases Applying the DOE to Structures that Were Known But Not Claimed

Other Federal Circuit cases, both before and after *Festo*, have taken the opposite approach. In these cases, the Federal Circuit has applied the DOE where the interchangeability of the alleged equivalent and the claim element was known at the time of time of patenting and nothing prevented the patentee from claiming the equivalent, if that had been intended.

For example, the Federal Circuit relied on "known interchangeability" in *Overhead Door Corp. v. Chamberlain Group, Inc.*, 194 F.3d 1261(Fed. Cir. 1999), in reversing a grant of summary judgement of noninfringement under the DOE. In that case, the patent claim included a limitation requiring a mechanical "memory selection switch." The device that was alleged to infringe did not have a mechanical switch as called for by the patent claim, and instead "select[ed] memory locations with a software program, not with a mechanical switch." *Id.* at 1269. In reversing the grant of summary judgment of noninfringement, the Federal

Circuit stated that the art had long recognized software processes and hardware processes "as interchangeable substitutes" and the decision of which to use was a "matter of design choice." *Id.* at 1269-70.

Likewise, in *Lifescan, Inc. v. Home Diagnostics, Inc.*, 76 F.3d 358 (Fed. Cir. 1996), the Federal Circuit remanded for further proceedings under the DOE, based evidence that the alleged infringer had "simply replaced the initial step of the [patented] process with a known interchangeable alternative" that was taught by the prior art. *Id.* at 362. It stated that the evidence that the "known interchangeable alternative" was taught by prior art pre-dating the patent could be viewed as "reinforcing [the patentee's] position that the processes are equivalent." *Id.*

Just this year, the Federal Circuit relied on "evidence tending to show that conical and spherical surfaces are interchangeable" in assessing the objective reasonableness of the plaintiff's assertion of infringement under the DOE. *Depuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1336 (Fed. Cir. 2009). The evidence demonstrated that this interchangeability was known before filing of the patent-in-suit. *Id.* at 1337; *see also Interactive Pictures Corp. v. Infinite Pictures, Inc.*, 274 F.3d 1371, 1383 (Fed. Cir. 2001) ("testimony that the claimed [structure] and [the allegedly equivalent structure] are 'interchangeable alternatives' is substantial evidence supporting equivalence."); *Fiskars, Inc. v. Hunt Mfg. Co.*, 221 F.3d 1318, 1324 (Fed. Cir. 2000) ("That an element of an accused device already existed does not bar equivalency as to that element.").

This line of Federal Circuit cased ignores the change in the law wrought by *Festo* and relies instead on this Court's nineteenth century cases. It culminates in this case, where the Federal Circuit affirmed a finding of infringement under

the DOE notwithstanding the jury's unchallenged finding that the accused stents did not have the angular "corners" literally required by claim 36 and notwithstanding undisputed evidence that the circular arcs were known in the art and known to the inventor at the time of the patent as an alternative to angular "corners."

C. Resolving these Conflicting Lines of Authority Would Provide Needed Clarity to Patentees and the Public

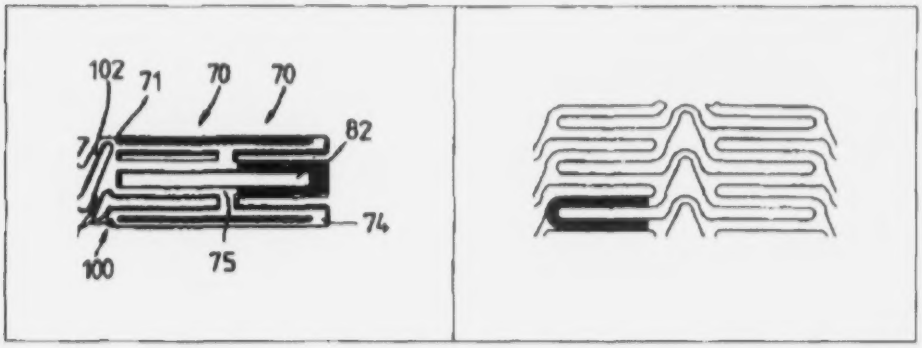
Resolving these conflicting lines of Federal Circuit precedent is important because, as the Federal Circuit has recognized, "the doctrine of equivalents blurs the line of demarcation between infringing and non-infringing activity," and thus "creates a zone of uncertainty, into which competitors tread only at their peril," leading to possible "foreclosure of competitive activity within the penumbra of each issued patent claim." *Sage*, 126 F.3d at 1425.

Allowing this conflict in Federal Circuit decisions to continue unresolved only expands this "zone of uncertainty." *Id.* Providing clarity on these issues would serve the interests of patentees and the public, reduce the number of patent disputes and promote legitimate competitive activity.

IV. This Case is an Excellent Vehicle for Resolving the Issue

This case presents the relevant issue in its starkest form. The key facts are undisputed. Stents having zig-zag rings with the claimed angular "corners" and the alleged equivalent – rings with circular arcs and no "corners" – were known in the art at the time the patent issued as alternative designs. Stents having both alternatives were sold by medical device manufacturers and used by cardiologists. Both alternatives were taught in prior art patents.

These design alternatives were not merely known in the art – they were known to the inventor. When the inventor described earlier stent designs in his patent, he provided two examples of well-known and "conventional" stent designs – one with angular corners and one with semicircular rings and no corners.



Nothing prevented the inventor from applying for patent claims that would have covered rings without "corners" had he considered such designs to be within the scope of his invention. Both alternatives were known to the inventor and there are no "shortcomings of language" (*Festo*, 344 F.3d at 1370) that would have prevented him from describing both alternatives in his patent claims had he desired to do so.

Under some Federal Circuit cases, the patentee's decision to draft a claim to cover only one of two or more known design alternatives operates to bar the patentee from later asserting that his claim nonetheless covers the other known alternatives under the DOE. In other cases, including this one, the Federal Circuit has reached the opposite result.

Patentees and their competitors both would benefit from a decision that provides clarity by resolving the conflict between these diametrically opposed lines of precedent.

CONCLUSION

The petition for a writ of certiorari should be granted.

Respectfully submitted,

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APPENDIX

APPENDIX A

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

2008-1003, -1072

CORDIS CORPORATION,

Plaintiff-Appellant,

v.

BOSTON SCIENTIFIC CORPORATION and SCIMED LIFE SYSTEMS, INC.,

Defendants-Cross Appellants.

Gregory L. Diskant, Patterson, Belknap Webb & Tyler LLP, of New York, New York, argued for plaintiff-appellant. With him on the brief were Eugene M. Gelernter, Thomas W. Pippert, Kathleen M. Crotty, Scott W. Parker and Scott B. Howard. Of counsel was Michael J. Timmons. Of counsel on the brief was Constantine L. Trela, Jr., Sidley Austin LLP, of Chicago, Illinois.

John M. Desmarais, Kirkland & Ellis LLP, of New York, New York, argued for defendants-cross appellants. With him on the brief were Peter J. Armenio, Young J. Park and Timothy K. Gilman.

Appealed from: United States District Court for the District of Delaware

Judge Sue L. Robinson

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

2008-1003, -1072

CORDIS CORPORATION,

Plaintiff-Appellant,

v.

BOSTON SCIENTIFIC CORPORATION and SCIMED LIFE SYSTEMS, INC.,

Defendants-Cross Appellants.

Appeals from the United States District Court for the District of Delaware in case no. 03-CV-027, Judge Sue L. Robinson.

DECIDED: March 31, 2009

Before MAYER and DYK, Circuit Judges, and HUFF, District Judge.*

DYK, Circuit Judge.

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* Honorable Marilyn L. Huff, District Judge, United States District Court for the Southern District of California, sitting by designation.

Cordis Corporation ("Cordis") appeals, and Boston Scientific Corporation and Scimed Life Systems, Inc. ("Boston Scientific") cross-appeal, from a final judgment of the United States District Court for the District of Delaware. The judgment was based on two separate jury verdicts of infringement: (1) infringement by Boston Scientific of claims 1 and 23 of U.S. Patent No. 4,739,762 ("the '762 patent") and claim 2 of U.S. Patent No. 5,895,406 ("the '406 patent"), and (2) infringement by Cordis of claim 36 of U.S. Patent No. 5,922,021 ("the '021 patent"). The judgment also determined that those claims were not invalid. Cordis Corp. v. Boston Scientific Corp., Civ. No. 03-027-SLR (D. Del. Sept. 24, 2007) (judgment). With one minor exception, we affirm.

BACKGROUND

Cordis and Boston Scientific own patents relating to intravascular stents, which are cylindrical lattice-like scaffolds inserted into a blood vessel and then expanded, often by using a balloon catheter, in order to hold the vessel open. Cordis owns the '762 patent and the '406 patent, and Boston Scientific owns the '021 patent.

In January 2003, Cordis filed suit against Boston Scientific, alleging that several of Boston Scientific's stents infringe various claims of the '762 patent and the '406 patent. Boston Scientific counterclaimed, alleging that several of Cordis's stents infringe various claims of the '021 patent. The district court denied Cordis's motion for a preliminary injunction against sales of one of Boston Scientific's stents, and we affirmed. Cordis Corp. v. Boston Scientific Corp., 99 F. App'x 928 (Fed. Cir. 2004).

We treat the Cordis claims and the Boston Scientific claims separately. Since Cordis is the appellant, we first

discuss Boston Scientific's claims against Cordis that are the subject of the Cordis appeal.

The Boston Scientific claims: The jury returned a verdict in July 2005 that (a) Cordis's Cypher, BX Velocity, BX Sonic, and Genesis stents do not literally infringe claim 36 of the '021 patent; (b) "the Cypher, BX Velocity, BX Sonic and Genesis stents infringe the 'corners' limitation of claim 36 of the '021 patent under the doctrine of equivalents"; and (c) claim 36 of the '021 patent is not invalid for obviousness. Cordis Corp. v. Boston Scientific Corp., Civ. No. 03-027-SLR, 2006 WL 1305227, at *1 (D. Del. May 11, 2006) ("Memorandum Opinion"). The district court denied Cordis's motion for judgment as a matter of law or, in the alternative, a new trial.

The Cordis claims: On summary judgment, the district court determined that claims 1 and 23 of the '762 patent were not invalid. A separate jury returned a verdict in favor of Cordis in June 2005 that (a) Boston Scientific's Express, Taxus Express, Express Biliary, and Liberté stents literally infringe claim 23 of the '762 patent; (b) Boston Scientific induced literal infringement of claim 1 of the '762 patent with respect to these stents; (c) the Liberté stent literally infringes claim 2 of the '406 patent; and (d) claim 2 of the '406 patent is neither anticipated nor rendered obvious by the prior art. The district court denied Boston Scientific's motion for judgment as a matter of law or, in the alternative, a new trial.

After the district court entered judgment, Cordis and Boston Scientific both timely appealed. We have jurisdiction under 28 U.S.C. §§ 1291, 1292(c)(2), and 1295(a)(1).

DISCUSSION

We review the denial of a motion for judgment as a matter of law without deference, and we review the denial of a motion for a new trial for abuse of discretion. Hewlett-Packard Co. v. Mustek Sys., Inc., 340 F.3d 1314, 1318 (Fed. Cir. 2003). Each party raises issues that have little merit. We dispose of those arguments summarily, reserving more extended discussion for the few issues that merit attention.

We first address Cordis's appeal.

A. "Wherein" clause construction

Cordis challenges the judgment that its BX Velocity stent infringes claim 36 of the '021 patent. Claim 36 depends from claim 24, which in turn depends from claim 23. '021 patent col.22 l.42, col.21 l.16.

The procedural posture of this issue is unclear. The jury found that the accused Cordis stents do not literally infringe claim 36 of the '021 patent. Instead of addressing whether Cordis's stents infringed claim 36 under the doctrine of equivalents, the jury was asked only to determine whether Cordis's stents "infringe the 'corners' limitation of claim 36 of the '021 patent under the doctrine of equivalents." J.A. at 11,238. The jury found that the "corners" limitation was infringed under the doctrine of equivalents. Apparently the parties agreed that the BX Velocity stent infringes all limitations of claim 36 (if properly construed by the district court) except the "corners" limitation, but the parties provided no reference in the record reflecting this agreement. However, the district court entered judgment of infringement of claim 36, and we assume that the judgment rests upon such an agreement.

Cordis first argues that the district court erred in construing the "wherein" clause of claim 23, and that under a proper construction of this clause Cordis's BX Velocity stent does not infringe claim 36.[1] The "wherein" clause of claim 23 describes how the struts within one expansion column or ring of a stent are connected to the struts of another column or ring,

> wherein the first expansion strut of the first expansion strut pair in the first expansion column has a longitudinal axis offset from a longitudinal axis of the first expansion strut of the second expansion strut pair in the second expansion column.

'021 patent col.21 ll.11-15 (emphasis added). The district court construed this "wherein" clause in claim 23 to mean "the first expansion strut in the first column does not share a longitudinal axis with the second expansion strut in the second column." Cordis Corp. v. Boston Scientific Corp., Civ. No. 03-027-SLR, 2005 WL 1322966, at *2 (D. Del. June 3, 2005) ("Claim Construction"). The district court refused to construe the "wherein" clause in claim 23 to exclude so-called "180 degrees out-of-phase" stent designs.

Claim construction is an issue of law, Markman v. Westview Instruments, Inc., 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996), that we review without deference, Cybor Corp. v. FAS Technologies Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc).

Cordis urges that the district court's construction improperly failed to exclude stents whose strut pairs are

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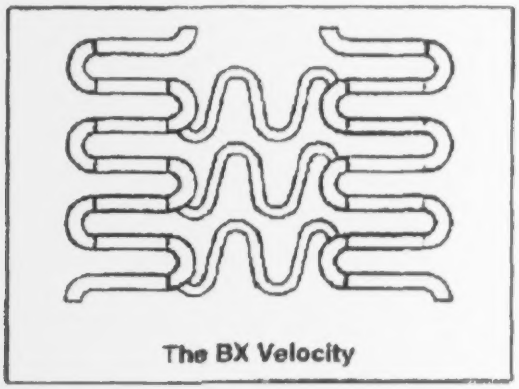
[1] This argument does not apply to Cordis's Cypher, BX Sonic, and Genesis stents.

arranged "180 degrees out of phase," a phrase that both parties agree is in common usage in stent design. In such a 180-degree out-of-phase arrangement, the struts within each expansion column or ring are connected to form pairs, and the connected ends of the pairs in one ring face the connected ends of the pairs in the next ring, forming a mirror-image pattern. Cordis argues that if claim 23 excludes such 180-degree out-of-phase designs, then Cordis's BX Velocity stent (which uses a 180-degree out-of-phase design) would not infringe claim 36. Cordis illustrated the 180-degree out-of-phase design with a diagram:



Br. for Pl.-Appellant Cordis Corp. 3.

Cordis argues that the same "wherein" clause appears in both claim 1 and claim 23; that the clauses must have the same meaning; and that the prosecution history shows that the "wherein" clause excludes 180-degree out-of-phase designs. Cordis's argument is a bit confusing. The issue is not the meaning of the "wherein" clause. Rather, the problem stems from the fact that claim 23 and claim 1 use different numbering systems, so that, for example, the "first expansion strut of the second expansion strut pair in the second expansion column" is not the same strut in claim 23 as in claim 1.

Under the numbering system of claim 1, each strut in a column or ring is either the "first" or "second" strut of a pair, each pair in the first ring is a "first . . . pair," and each pair in the second ring is a "second . . . pair."[2] Thus in claim

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[2] Claim 1 of the '021 patent states:

1. A stent in a non-expanded state, comprising: a first expansion strut pair including a first expansion strut positioned adjacent to a second expansion strut and a joining strut of the first expansion strut pair that couples the first and second expansion struts at a distal end of the first expansion strut pair, a plurality of the first expansion strut pair forming a first expansion column;

a second expansion strut pair including a first expansion strut positioned adjacent to a second expansion strut and a joining strut of the second expansion strut pair that couples the first and second expansion struts of the second expansion strut pair at a proximal end of the second expansion strut pair, a plurality of the second expansion strut pair forming a second expansion column;

a first connecting strut including a first connecting strut proximal section, a first connecting strut distal section and a first connecting strut intermediate section, the first connecting strut proximal section being coupled to the distal end of the first expansion strut pair in the first expansion column and the first connecting strut distal section being coupled to the proximal end of the second expansion strut pair of the second expansion column, a plurality of the first connecting strut forming a first connecting strut column that couples the first expansion column to the second expansion column, the first connecting strut intermediate section being non-parallel to the first connecting strut proximal and distal sections, wherein the first expansion strut of the first expansion strut pair in the first expansion column has a longitudinal axis offset from a longitudinal axis of the first expansion strut of the second expansion strut pair in the second expansion column.

'021 patent col.18 ll.9-41 (emphases added).

1, the "wherein" clause requires the first strut of every strut pair in the first ring to be offset from the first strut of every strut pair in the second ring, which would not be possible in a 180-degree out-of-phase design. However, under the numbering system of claim 23, each strut in a ring is individually numbered "first . . . second . . . third . . . fourth . . . ," each pair in the first ring is individually numbered "first . . . second . . . third . . . fourth . . . ," and each pair in the second ring is individually numbered "first . . . second . . . third . . . fourth . . . ." [3] Thus in claim 23, the "wherein"

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[3] Claim 23 of the '021 patent states:

23. A stent in a non-expanded state, comprising:

a first expansion column formed of a plurality of first expansion column strut pairs, a first expansion strut pair including a first expansion strut adjacent to a second expansion strut and a first joining strut that couples the first and second expansion struts at a proximal end of the first expansion strut pair, a second expansion strut pair including a third expansion strut adjacent to the second expansion strut and a second joining strut that couples the second and third expansion struts at a distal end of the second expansion strut pair, a third expansion strut pair including a fourth expansion strut adjacent to the third expansion strut and a third joining strut that couples the third and fourth expansion struts at a proximal end of the third expansion strut pair, a fourth expansion strut pair including a fifth expansion strut adjacent to the fourth expansion strut and a fourth joining strut that couples the fourth and fifth expansion struts at a distal end of the fourth expansion strut pair, a first expansion strut pair first corner formed where the first joining strut is coupled to the first expansion strut, and a first expansion strut pair second corner formed where the first joining strut is coupled to the second expansion strut, and a second expansion strut pair first corner formed where the second joining strut is coupled to the second expansion strut, and a second expansion strut pair second corner formed where the second joining strut is coupled to the third expansion strut, and a third expansion strut pair first corner formed where the third joining strut is coupled to the third

expansion strut, and a third expansion strut pair second corner formed where the third joining strut is coupled to the fourth expansion strut, and a fourth expansion strut pair first corner formed where the fourth joining strut is coupled to the fourth expansion strut, and a fourth expansion strut pair second corner formed where the fourth joining strut is coupled to the fifth expansion strut;

a second expansion column formed of a plurality of second expansion column strut pairs, a first expansion strut pair including a first expansion strut adjacent to a second expansion strut and a first joining strut that couples the first and second expansion struts at a proximal end of the first expansion strut pair, a second expansion strut pair including a third expansion strut adjacent to the second expansion strut and a second joining strut that couples the second and third expansion struts at a distal end of the second expansion strut pair, a third expansion strut pair including a fourth expansion strut adjacent to the third expansion strut and a third joining strut that couples the third and fourth expansion struts at a proximal end of the third expansion strut pair, a fourth expansion strut pair including a fifth expansion strut adjacent to the fourth expansion strut and a fourth joining strut that couples the fourth and fifth expansion struts at a distal end of the fourth expansion strut pair, a first expansion strut pair first corner formed where the first joining strut is coupled to the first expansion strut, and a first expansion strut pair second corner formed where the first joining strut is coupled to the second expansion strut, and a second expansion strut pair first corner formed where the second joining strut is coupled to the second expansion strut, and a second expansion strut pair second corner formed where the second joining strut is coupled to the third expansion strut, and a third expansion strut pair first corner formed where the third joining strut is coupled to the third expansion strut, and a third expansion strut pair second corner formed where the third joining strut is coupled to the fourth expansion strut, and a fourth expansion strut pair first corner formed where the fourth joining strut is coupled to the fourth expansion strut, and a fourth expansion strut pair second corner formed where the fourth joining strut is coupled to the fifth expansion strut; and

clause requires only one specific strut (the first strut of the first pair in the first ring) to be offset from one other specific strut (the "first expansion strut of the second expansion strut pair" in the second ring). Cordis numbered a figure from the '021 patent (also known as the Jang patent) to illustrate these different numbering systems:

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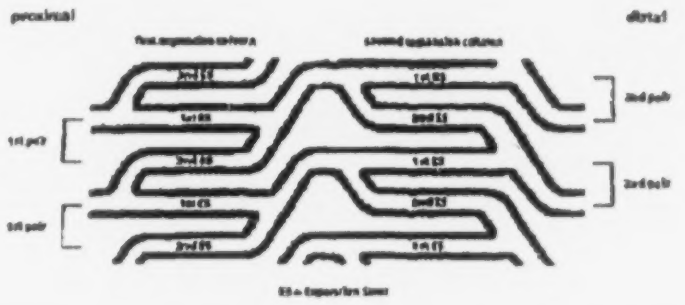
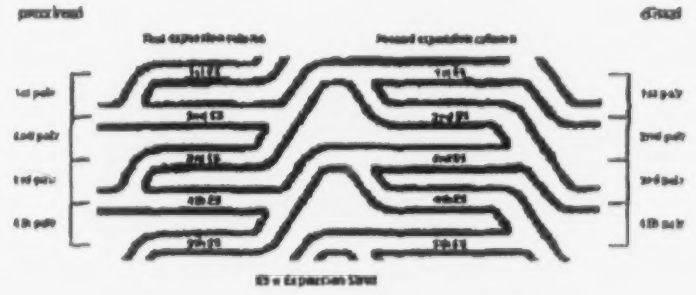
a first connecting strut column formed of a plurality of first connecting struts, each connecting strut of the first connecting strut column including a connecting strut proximal section, a connecting strut distal section and a connecting strut intermediate section, a first connecting strut proximal section is coupled to the joining strut of the second expansion strut pair of the first expansion strut column, and a first connecting strut distal section is coupled to the joining strut of the first expansion strut pair of the second expansion strut column, and a second connecting strut proximal section is coupled to the joining strut of the fourth expansion strut pair of the first expansion strut column, and a second connecting strut distal section is coupled to the joining strut of the third expansion strut pair of the second expansion strut column, the first connecting strut intermediate section being non-parallel to the first connecting strut proximal and distal sections wherein the first expansion strut of the first expansion strut pair in the first expansion column has a longitudinal axis offset from a longitudinal axis of the first expansion strut of the second expansion strut pair in the second expansion column.

'021 patent col.19 l.53 – col.21 l.15 (emphases added).

Jang '021, Fig. 2A, Numbered According to Claim 1



Jang '021, Fig. 2A, Numbered According to Claim 23



Br. for Pl.-Appellant Cordis Corp. 40. Because these two specific struts could be offset from each other but yet aligned with other struts to form a 180-degree out-of-phase pattern, the language of claim 23 includes 180-degree out-of-phase designs. Indeed, the parties appear to agree that on their face claim 1 and claim 23 each use a different numbering system to describe the relative arrangement of a stent's struts, with the result that the claim 23 "wherein" clause does not exclude 180-degree out-of-phase designs. The question is whether the prosecution history requires that, despite its plain language, the "wherein" clause of claim 23 be construed to

use the same numbering system as claim 1. Cordis argues that the prosecution history reflects such a "clear and unmistakable" disclaimer. Free Motion Fitness, Inc. v. Cybex Int'l, Inc., 423 F.3d 1343, 1353 (Fed. Cir. 2005); see also Omega Eng'g, Inc., v. Raytek Corp., 334 F.3d 1314, 1325-26 (Fed. Cir. 2003). We cannot agree.

The "wherein" clause was added to claims 1 and 23 during the prosecution of the '021 patent after the examiner rejected both claims as anticipated by European Patent Application No. 95307687.4, Pub. No. 0 709 067 A2 ("Pinchasik"). Pinchasik discloses a stent whose struts are arranged in a 180-degree out-of-phase design but whose struts are not numbered. During the first office action, the examiner rejected claims 1 and 23 as anticipated by Pinchasik, coloring one of Pinchasik's stent design figures and numbering parts of the figure (labeled "Figure 2") according to the numbering system of claim 1 of the '021 patent.[4] The examiner's numbering system is, however, different than claim 23's numbering system. The examiner's rejection in light of Pinchasik made no reference to 180-degree out-of-phase designs, but simply stated that claim 1, claim 23, and other claims "are rejected under 35 U.S.C. § 102(b) as being anticipated by Pinchasik" and that "[w]ith respect to [these claims] . . . refer to the modified Figure 2 attached to this office action." J.A. at 1705. After the "wherein" clause was added to claims 1 and 23, the examiner allowed both claims. Cordis argues that the examiner used only the numbering system of claim 1 when allowing both

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[4] The exhibit included at page 7994 of the Joint Appendix shows that the examiner colored in and labeled the figure from Pinchasik, but does not disclose numbering of the figure by the examiner. The parties appear not to dispute that the examiner did number the figure according to the numbering system of claim 1 of the '021 patent.

claim 1 and claim 23, and that the examiner necessarily assumed that claim 23 used the same numbering system as claim 1. However, the examiner did not say so, and we cannot simply suppose that the claims were allowed based on an assumed identity of numbering systems. We note that Cordis does not argue that Pinchasik anticipates claim 23 of the '021 patent under the district court's claim construction, which suggests that the examiner could have allowed the claim on other grounds. Cordis also argues that both the applicant and the examiner referred to stent pairs as "longitudinally offset," but these references simply repeat the "wherein" clause and say nothing about different numbering systems. Finally, on the disclaimer issue, Cordis argues that the '021 patent's provisional application described the invention as consisting of stents whose flexibility depended on connections between "split level" (and thus offset) strut pairs, but again this language in the provisional application did not discuss the system for numbering these connected strut pairs. A disclaimer must be "clear and unmistakable," and unclear prosecution history cannot be used to limit claims. Free Motion Fitness, 423 F.3d at 1352-53; see also Inverness Med. Switz. GmbH v. Warner Lambert Co., 309 F.3d 1373, 1381-82 (Fed. Cir. 2002). The plain language of claim 23 cannot be overcome by such unclear prosecution history. Although Cordis urges that no figure in the '021 patent uses a 180-degree out-of-phase design, a patent is not confined to its disclosed embodiments. See Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc).

We affirm the district court's construction of the "wherein" clause in claim 23 of the '021 patent.

B. Corners limitation

Alternatively, Cordis argues that the judgment of infringement of claim 36 of the '021 patent by the BX Velocity stent should be set aside, because the jury erred in

concluding that the "corners" limitation of claim 36 was satisfied under the doctrine of equivalents, and because the district court erred in denying judgment as a matter of law on this ground. The "corners" limitation appears both in the language of claim 36 itself and in claim 23, on which claim 36 depends.[5] Cordis does not dispute the district court's construction of "corners" as "a place where two surfaces meet to form an angle." Claim Construction, 2005 WL 1322966, at *1.

First, Cordis argues that the evidence did not support the jury's verdict of infringement of this limitation under the doctrine of equivalents. A jury's determination of infringement is a question of fact that we review to consider whether it is supported by substantial evidence. B. Braun Med., Inc. v. Abbott Labs., 124 F.3d 1419, 1423 (Fed. Cir. 1997).

The district court properly found that Boston Scientific presented sufficient expert testimony that Cordis's BX Velocity stent meets the "corners" limitation of claim

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[5] Claim 36 of the '021 patent states:

36. The stent of claim 24, wherein the first connecting strut proximal section is coupled to the second corner of the second expansion strut pair of the first expansion strut column, and the first connecting strut distal section is coupled to the first corner of the first expansion strut pair of the second expansion strut column, and the second connecting strut proximal section is coupled to the second corner of the fourth expansion strut pair of the first expansion strut column, and the second connecting strut distal section is coupled to the first corner of the third expansion strut pair of the second expansion strut column.

'021 patent col.22 ll.42-52 (emphases added).

36 under the doctrine of equivalents under the function-way-result test of Graver Tank & Manufacturing Co. v. Linde Air Products Co., 339 U.S. 605, 608 (1950), a test that is still useful under Warner-Jenkinson Co. v. Hilton-Davis Chemical Co., 520 U.S. 17, 39-40 (1997), particularly for mechanical inventions. Boston Scientific's expert Dr. Moore testified that the "corners" in claim 36 and the circular arcs or rounded corners of the BX Velocity stent both function as actual and potential reference points for joining adjacent stent rings, fulfill this function through their similar locations, and can or do result in offset connections between stent rings. Such testimony fulfills Boston Scientific's obligation to "provide particularized testimony and linking argument . . . with respect to the function, way, result test when such evidence is presented to support a finding of infringement under the doctrine of equivalents." Tex. Instruments Inc. v. Cypress Semiconductor Corp., 90 F.3d 1558, 1567 (Fed. Cir. 1996).

Cordis next argues that the doctrine of equivalents should not be applied in this case because the jury's finding of infringement vitiated the "corners" limitation.[6] Cordis asserts that the circular arcs of the BX Velocity stent cannot "form an angle" as required by the district court's claim construction. Whether the doctrine of equivalents vitiated a patent claim is a question of law we review de novo. Pfizer, Inc. v. Teva Pharms. USA, Inc., 429 F.3d 1364, 1379 (Fed. Cir. 2005).

The district court properly found that vitiation did not bar a doctrine of equivalents analysis here. Although we have "refused to apply the doctrine [of equivalents] . . . where the accused device contained the antithesis of the claimed

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[6] Cordis also argues that circular arcs were disclaimed. We find no basis for this in the prosecution history of the '021 patent.

structure," Planet Bingo, LLC v. GameTech International, Inc., 472 F.3d 1338, 1345 (Fed. Cir. 2006), the circular arcs of the BX Velocity are not antithetical to the "corners" limitation in claim 36 of the '021 patent. Boston Scientific's theory that the circular arcs of the BX Velocity stent are equivalent to the "corners" in claim 36 does not vitiate the "corners" limitation, because it does not "render[ ] the pertinent limitation meaningless," Freedman Seating Co. v. Am. Seating Co., 420 F.3d 1350, 1359 (Fed. Cir. 2005), or "effectively eliminate that element in its entirety," Warner-Jenkinson, 520 U.S. at 29. See Primos, Inc. v. Hunter's Specialties, Inc., 451 F.3d 841, 850 (Fed. Cir. 2006).

We affirm the district court's denial of Cordis's motions for judgment as a matter of law or, in the alternative, a new trial on infringement of the '021 patent.

C. New claim construction arguments

Cordis argues that the district court improperly declined after trial to adopt a new construction of "expansion columns" and "connecting strut columns" in the claims of the '021 patent. In a motion for judgment as a matter of law on infringement of the '021 patent, Cordis raised for the first time the argument that the district court should adopt the construction of these terms that Boston Scientific had advocated in a different case relating to the '021 patent.[7] The district court declined to do so. Cordis Corp. v. Boston Scientific Corp., Civ. Nos. 03-027-SLR, 03-283-SLR, 2007 WL 2775087, at *1 (D. Del. Sept. 24, 2007).

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[7] The claim construction Cordis urged the district court to adopt was appealed to this court and has since been vacated and remanded. Jang v. Boston Scientific Corp., 532 F.3d 1330, 1331 (Fed. Cir. 2008).

Raising this argument for the first time in a motion for judgment as a matter of law more than a year after the jury's infringement verdict was too late. "[L]itigants waive their right to present new claim construction disputes if they are raised for the first time after trial." Conoco, Inc. v. Energy & Envtl. Int'l, L.C., 460 F.3d 1349, 1359 (Fed. Cir. 2006); see also Abbott Labs. v. Syntron Bioresearch, Inc. 334 F.3d 1343, 1357 (Fed. Cir. 2003). The district court properly declined to revise its claim construction in response to Cordis's argument.

D. Indefiniteness

Cordis asserts that the district court erred in finding that claim 23 of the '021 patent is not indefinite. Cordis argues that claim 36, and claim 23 on which it depends, are invalid unless claim 23's "wherein" clause is construed to exclude 180-degree out-of-phase designs. Indefiniteness under 35 U.S.C. § 112 ¶ 2 is an issue of claim construction and a question of law that we review de novo. Praxair, Inc. v. ATMI, Inc., 543 F.3d 1306, 1319 (Fed. Cir. 2008). We see no basis for Cordis's argument. Claim 23 as construed by the district court is not indefinite.

E. Obviousness

Cordis argues that the jury erred in finding that claim 36 of the '021 patent was not invalid for obviousness, and that the district court erred in denying Cordis's motion for judgment as a matter of law of obviousness.

The '021 patent claims priority to its provisional application. '021 patent col.1 ll.6- 8. Cordis first argues that the district court should have ruled as a matter of law that the '021 patent was not entitled to a priority date of April 26, 1996 (when the '021 patent's provisional application was filed),

and that the correct priority date is April 25, 1997 (when the '021 patent's non-provisional application was filed). Cordis asserts that the priority date is important because after April 26, 1996, and before April 25, 1997, inventors had created stents that demonstrated that claim 36 of the '021 patent was invalid as obvious under 35 U.S.C. § 103. Cordis's basis for challenging the priority date is its theory that the '021 patent's April 1996 provisional application did not provide a sufficient written description of the patent's limitations, namely the limitation of claim 36 requiring connecting struts to be attached on one end at a "second" or bottom corner of a strut pair and on the other end at a "first" or top corner.

The written description requirement of 35 U.S.C. § 112 ¶ 1 is a question of fact, and we review a jury's findings of fact relating to the written description requirement for substantial evidence. PIN/NIP, Inc. v. Platte Chem. Co., 304 F.3d 1235, 1243 (Fed. Cir. 2002). To comply with the written description requirement, an applicant must "convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention," New Railhead Mfg., L.L.C. v. Vermeer Mfg. Co., 298 F.3d 1290, 1295 (Fed. Cir. 2002) (quoting Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991) (emphasis omitted)), namely that he or she "had invented each feature that is included as a claim limitation," New Railhead, 298 F.3d at 1295. The district court cited uncontradicted testimony from Boston Scientific's expert Dr. Moore that the '021 patent's provisional application provided a sufficient written description of the limitations of claim 36. We conclude that the jury could properly find that the '021 patent was entitled to an April 1996 priority date.

Cordis alternatively argues that regardless of whether the '021 patent has a priority date of April 1996 or

April 1997, several earlier patents[8] were prior art rendering claim 36 obvious. Cordis asserts that it would have been obvious to one of ordinary skill in the art to combine features of these patents to create stents with the bottom-corner-to-top-corner connecting struts disclosed in claim 36 of the '021 patent.

"We review '[the] jury's conclusions on obviousness, a question of law, without deference, and the underlying findings of fact . . . for substantial evidence.'" Johns Hopkins Univ. v. Datascope Corp., 543 F.3d 1342, 1345 (Fed. Cir. 2008) (quoting LNP Eng'g Plastics, Inc. v. Miller Waste Mills, Inc., 275 F.3d 1347, 1353 (Fed. Cir. 2001)). The district court cited uncontradicted testimony from Boston Scientific's expert Dr. Moore that the prior art patents cited by Cordis would be unlikely to be combined to create the connectors of claim 36 of the '021 patent, and that these prior art patents taught away from the bottom-to-top connectors described in claim 36 by describing features of such connectors as potentially harmful. The district court properly concluded there was substantial evidence that these prior art patents did not render claim 36 obvious.

We affirm the district court's denial of Cordis's motion for judgment as a matter of law or, in the alternative, a new trial on invalidity of the '021 patent.

II

We next address Boston Scientific's cross-appeal.

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[8] U.S. Patent Nos. 5,102,417; 5,449,373; 5,643,312; 5,733,303; and 6,348,065.

A. Monographs

Boston Scientific argues that the district court erred in holding that two monographs prepared by the inventor of the '762 patent are not prior art, and erred in granting Cordis's motion for summary judgment that the asserted claims of the '762 patent are not invalid "as to the asserted claims being invalidated by the Palmaz Monographs." Cordis Corp. v. Boston Scientific Corp., Civ. No. 03-027-SLR (D. Del. June 3, 2005) (summary judgment order).

If there are no facts in dispute, whether a reference is a prior art "printed publication" within the meaning of 35 U.S.C. § 102(b) is a question of law.[9] In re Klopfenstein, 380 F.3d 1345, 1347 (Fed. Cir. 2004). Because the facts of the distribution of Dr. Palmaz's monographs are not in dispute, we review de novo the issue of whether the monographs are prior art printed publications.

In 1980 the inventor of the '762 patent, Dr. Palmaz, prepared a ten-page paper describing his work on stents. This paper is the "1980 monograph." At that time he was a resident at a hospital in California. His name was not on the paper. He gave copies of the paper to approximately six of his teachers at an oral presentation of his work to these physicians and several other colleagues. Pursuant to agreements, Palmaz later gave copies of the monograph to two companies (Vascor, Inc., and Shiley, Inc.) while attempting to

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[9] Under 35 U.S.C. § 102, "[a] person shall be entitled to a patent unless . . . (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States."

commercialize his stent technology.[10] Neither agreement required confidentiality, and the Shiley agreement specifically stated that Shiley "shall not be committed to keep secret any idea or material submitted." J.A. at 19,473. In 1983 Dr. Palmaz revised the paper; the revised paper became the "1983 monograph." In 1983 he also gave a copy of both monographs to Werner Schultz, a technician from whom Dr. Palmaz was seeking fabrication assistance. When Dr. Palmaz joined the faculty in 1983 at the University of Texas, San Antonio, he gave a copy of the 1983 monograph to a doctor there (who then gave it to the technician setting up Dr. Palmaz's laboratory) and to the university as part of a research proposal. Dr. Palmaz applied for the patent that became the '762 patent in 1985.

A document is publicly accessible if it "has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it and recognize and comprehend therefrom the essentials of the claimed invention without need of further research or experimentation." In re Wyer, 655 F.2d 221, 226 (CCPA 1981) (quoting I.C.E. Corp. v. Armco Steel Corp., 250 F. Supp. 738, 743 (S.D.N.Y.1966)). In general, "[a]ccessibility goes to the issue of whether interested members of the relevant public could obtain the information if they wanted to." Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1569 (Fed. Cir. 1988). Many of our cases in this area have concerned publications available in libraries, and the question has been whether the publication has been sufficiently indexed to be publicly accessible. See, e.g., In re Cronyn, 890 F.2d 1158, 1161 (Fed. Cir. 1989); In re Hall,

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[10] The parties here agree that there is no evidence that copies of the monographs were given to a third commercial entity, Cook Inc., before the critical date of the '021 patent.

781 F.2d 897, 899 (Fed. Cir. 1986); In re Wyer, 655 F.2d at 226. Other cases have involved widespread distribution so that the public could easily obtain copies of the publication. See, e.g., Kyocera Wireless Corp. v. Int'l Trade Comm'n, 545 F.3d 1340, 1350-51 (Fed. Cir. 2008).

Here we have a somewhat different question: whether the distribution to a limited number of entities without a legal obligation of confidentiality renders the monographs printed publications under § 102(b). We have held that where a distribution is made to a limited number of entities, a binding agreement of confidentiality may defeat a finding of public accessibility. But we have also held that such a binding legal obligation is not essential. Klopfenstein, 380 F.3d at 1351. We have noted that "[w]here professional and behavioral norms entitle a party to a reasonable expectation" that information will not be copied or further distributed, "we are more reluctant to find something a 'printed publication.'"[11] Id. at 1350-51.

We first discuss Dr. Palmaz's distribution of copies of his monographs to his university and hospital colleagues. We have recognized the importance of "preserv[ing] the incentive for inventors to participate in academic presentations or discussions" by noting that professional norms may support expectations of confidentiality. Id. at

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[11] In the public use context of § 102(b), we have similarly noted that a lack of an express promise of confidentiality is not determinative of public use, but is instead "one factor to be considered in assessing all the evidence." Bernhardt, L.L.C. v. Collezione Europa USA, Inc., 386 F.3d 1371, 1379 (Fed. Cir. 2004) (quoting Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1266 (Fed. Cir. 1986)), abrogated on other grounds by Egyptian Goddess, Inc. v. Swisa, Inc., 543 F.3d 665 (Fed. Cir. 2008) (en banc); see also Invitrogen Corp. v. Biocrest Mfg., L.P., 424 F.3d 1374, 1382 (Fed. Cir. 2005).

1351. The record here contains clear evidence that such academic norms gave rise to an expectation that disclosures will remain confidential.[12] Cordis's expert Dr. Buller testified that the "code of practice which occurs worldwide in academic circles, in departments, in medicine" includes treating a document describing scientific research in the "same confidential manner as you would if you had been given it directly by the author." J.A. at 8540-41. The district court properly concluded that Dr. Palmaz's distribution of the monographs to his academic and research colleagues did not render the monographs prior art printed publications.

However, Boston Scientific urges that, even if the academic and hospital distributions did not create public accessibility, the distribution of monographs to two commercial entities did so. These distributions occurred during attempts to interest the two companies in development of Dr. Palmaz's stent designs. There is no claim here that the two commercial entities provided any express agreement to keep the document confidential; indeed, one entity's disclosure agreement did not discuss the entity's confidentiality obligations, and the other entity's disclosure agreement specifically disclaimed such obligations (most likely to avoid a lawsuit resulting from inadvertent disclosure). Boston Scientific argues that under the decision of our predecessor court, the Court of Claims, in Garrett Corp. v. United States, "[w]hile distribution [of

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[12] The only potentially contrary testimony is a statement in a report by Boston Scientific's expert that a "colleague, faculty member or other recipient [of the monographs] . . . would be under no obligation to maintain the disclosure in confidence." J.A. at 19,386. As we have discussed, whether or not recipients have a legal obligation to maintain confidentiality is not determinative.

a government report] to government agencies and personnel alone may not constitute publication, distribution to commercial companies without restriction on use clearly does." 422 F.2d 874, 878 (Ct. Cl. 1970) (citation omitted).

However, the evidence here was sufficient to support a conclusion that there was an expectation of confidentiality between Dr. Palmaz and each of the two commercial entities. While the Shiley legal agreement executed before development discussions disclaimed a confidentiality requirement, Dr. Palmaz testified that he requested confidentiality during subsequent discussions and was "surprise[d]" when he was shown the language of the Shiley agreement. J.A. at 8517; id. at 19,354. There is no suggestion that the request for confidentiality was not, in fact, honored. Dr. Palmaz confirmed that the entities kept their copies of the monograph confidential, whether or not they were legally obligated to do so. J.A. at 8502. The district court noted that "there is no evidence that [the commercial entities] would have distributed, or in fact did distribute, the 1980 Monograph outside of the company." Cordis Corp. v. Boston Scientific Corp., Civ. No. 03-027-SLR, 2005 WL 1331172, at *4 (D. Del. June 3, 2005). There was no showing that similar documents in the past became available to the public as a result of disclosure by these or similar commercial entities, that these or similar commercial entities typically would make the existence of such documents known and would honor requests for public access, or that these or similar commercial entities had an incentive to make the document available, etc. The mere fact that there was no legal obligation of confidentiality—all that was shown here—is not in and of itself sufficient to show

that Dr. Palmaz's expectation of confidentiality was not reasonable.[13]

We affirm the district court's holding that Dr. Palmaz's 1980 and 1983 monographs were not prior art printed publications under § 102(b), and we affirm the district court's grant of Cordis's summary judgment motion that the claims of the '762 patent are not invalidated by the Palmaz monographs.

B. Anticipation

Boston Scientific argues that the jury erred in finding that claim 2 of the '406 patent is not invalid, and that the district court erred in not granting judgment as a matter of law on grounds of anticipation. Anticipation is a question of fact; we review the jury's verdict for substantial evidence. Voda v. Cordis Corp., 536 F.3d 1311, 1321 (Fed. Cir. 2008).

Boston Scientific's theory is that Cordis's '762 patent anticipates claim 2 of Cordis's '406 patent. The parties agree that the '762 patent includes all elements of claim 2 of the '406 patent, save for the functional language in claim 1 of the '406 patent (on which claim 2 of the '406 patent depends). This functional language states, "such that the links and bands define an expandable structure having

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[13] Boston Scientific asserted that the district court improperly did not allow it to argue that the monographs were prior art in light of the result of a different litigation involving the '762 patent. We do not need to reach the question of whether the earlier determination that the '762 patent was "valid" precluded further litigation of the validity determination in this case.

axial flexibility in an unexpanded configuration." '406 patent col.5 ll.35-39 (emphases added).[14]

Boston Scientific argues that this "such that" claim language cannot operate as a claim limitation to distinguish the '406 patent over the prior art. Contrary to Boston Scientific's argument, we have held that functional language can be a claim limitation. See Microprocessor Enhancement Corp. v. Tex. Instruments Inc., 520 F.3d 1367, 1375 (Fed. Cir. 2008). We conclude that the jury could properly find that the "such that" claim language is a limitation of claim 1 of the '406 patent that barred a finding of anticipation.

Boston Scientific alternatively argues that even if the "such that" functional language limits claim 2 to stents "having axial flexibility," the evidence demonstrated that the '762 patent disclosed such axial flexibility. The district court,

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[14] Claims 1 and 2 of the '406 patent state:

1. A stent having first and second ends with an intermediate section therebetween, and a longitudinal axis, comprising:

a plurality of longitudinally disposed bands, wherein each band defines a generally continuous wave having a spatial frequency along a line segment parallel to the longitudinal axis; and

a plurality of links for maintaining the bands in a tubular structure, wherein the links are so disposed that any single circumferential path formed by the links is discontinuous;

such that the links and bands define an expandable structure having axial flexibility in an unexpanded configuration.

2. A stent according to claim 1, wherein each link is axially displaced from any circumferentially adjacent link.

'406 patent col. 5 ll.26-41 (emphases added).

citing both the testimony of Boston Scientific's expert Dr. Moore and the presumption of a patent's validity, held that the evidence presented was sufficient for the jury to find that the '762 patent did not anticipate claim 2 of the '406 patent. The district court properly concluded that substantial evidence supported the jury's verdict that claim 2 of Cordis's '406 patent was not invalid.

We affirm the district court's denial of Boston Scientific's motion for judgment as a matter of law that claim 2 of the '406 patent is anticipated and invalid.

C. "Thin-walled"

Boston Scientific argues that the jury erred in finding that Boston Scientific's Express and Taxus Express stents literally infringe claim 23 of the '762 patent, and in finding that Boston Scientific induced literal infringement of claim 1 of the '762 patent with respect to these stents.[15]

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[15] Claims 1, 13, and 23 of the '762 patent state:

1. A method for implanting a prosthesis within a body passageway comprising the steps of:

utilizing a thin-walled, tubular member as the prosthesis, the tubular member having a plurality of slots formed therein, the slots being disposed substantially parallel to the longitudinal axis of the tubular member;

disposing the prosthesis upon a catheter;

inserting the prosthesis and catheter within the body passageway by catheterization of said body passageway; and

expanding and deforming the prosthesis at a desired location within the body passageway by expanding a portion of the catheter associated with the prosthesis to force the

Claim 23 of the '762 patent depends from claim 13. '762 patent col.12 ll.55-60. Boston Scientific also argues that the district court erred in denying its motion for judgment as a matter of law of noninfringement under the "thin-walled" limitation of claim 1 and claim 13.

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prosthesis radially outwardly into contact with the body passageway, the prosthesis being deformed beyond its elastic limit.

13. An expandable intraluminal vascular graft, comprising:

a thin-walled tubular member having first and second ends and a wall surface disposed between the first and second ends, the wall surface having a substantially uniform thickness and a plurality of slots formed therein, the slots being disposed substantially parallel to the longitudinal axis of the tubular member;

the tubular member having a first diameter which permits intraluminal delivery of the tubular member into a body passageway having a lumen; and

the tubular member having a second, expanded and deformed diameter, upon the application from the interior of the tubular member of a radially, outwardly extending force, which second diameter is variable and dependent upon the amount of force applied to the tubular member, whereby the tubular member may be expanded and deformed to expand the lumen of the body passageway.

23. The expandable intraluminal vascular graft of claim 13, wherein the outside of the wall surface of the tubular member is a smooth surface, when the tubular member has the first diameter.

'762 patent col.10 l.6–col.11 l.9; col.11 l.62–col.12 l.15; col.12 ll.55-60 (emphases added).

First, Boston Scientific argues that the district court construed the term "thin-walled" improperly. The district court construed "thin-walled" in claim 1 and claim 13 of the '762 patent as "the wall of the tubular member must have little extent from one surface to its opposite at both its first and second diameters." Claim Construction, 2005 WL 1322966, at *2. The district court's claim construction was proper, and the district court was not obligated, as Boston Scientific urges, to construe "thin-walled" to exclude stent walls whose struts are thicker than they are wide.

Second, Boston Scientific complains that the district court refused to allow Boston Scientific to argue the prosecution history of the '762 patent to the jury, and that the district court's exclusion of this argument prejudiced Boston Scientific's noninfringement case. Boston Scientific had sought to use the prosecution history of the '762 patent to show that Cordis had admitted that stents whose thicknesses were within a particular numerical range were not "thin-walled."[16] In effect, Boston Scientific sought to argue claim construction to the jury. We have held that it is improper to argue claim construction to the jury because the "risk of confusing the jury is high when experts opine on claim construction." CytoLogix Corp. v. Ventana Med. Sys., Inc., 424 F.3d 1168, 1172-73 (Fed. Cir. 2005); see Sundance, Inc. v. DeMonte Fabricating Ltd., 550 F.3d 1356, 1364 n.6 (Fed. Cir. 2008). The district court thus properly excluded Boston Scientific's claim construction argument before the jury, and properly held that its exclusion of this argument did not entitle Boston Scientific to a new trial.

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[16] When affirming the district court's denial of Cordis's preliminary injunction motion in this case, we found no error in the district court's conclusion that the prosecution history did not limit "thin-walled" to "thicknesses no greater than 0.0045 inches." Cordis Corp., 99 F. App'x at 933.

Third, Boston Scientific argues that even under the district court's claim construction, Cordis did not present sufficient evidence that the Express and Taxus Express stents meet the "thin-walled" limitations of claim 1 and claim 13 (on which claim 23 depends). The district court cited testimony by Cordis's expert Dr. Buller describing how the Express and Taxus Express stents meet the "thin-walled" limitation of claims 1 and 23 under the district court's construction of this limitation. Memorandum Opinion, 2006 WL 1305227, at *12. We conclude that the district court properly found that Cordis presented substantial evidence to support the jury's infringement verdict.

We affirm the district court's denial of Boston Scientific's motion for judgment as a matter of law that the Express and Taxus Express stents do not infringe claims 1 and 23 of the '762 patent under the "thin-walled" limitation of these claims.

D. "Substantially parallel"

Boston Scientific argues that the jury erred in finding that Boston Scientific's Liberté stent infringes claims 1 and 23 of the '762 patent, and that the district court erred in denying Boston Scientific's motion for judgment as a matter of law of noninfringement under the "substantially parallel" limitations of claim 1 and claim 13 (on which claim 23 depends). Both claim 1 and claim 13 describe stents whose slots (spaces or openings within a stent's lattice design) are "disposed substantially parallel to the longitudinal axis" of the stent. '762 patent col.10 l.61–col.11 l.9; col.11 l.62–col.12 l.15 (emphasis added).

Boston Scientific first contends that the district court erred by not construing the term "parallel" in claim 1 and claim 13 of the '762 patent. This argument was not timely

raised before the district court and has been waived. Conoco, 460 F.3d at 1359.

Next, Boston Scientific argues that Cordis did not present substantial evidence that the Liberté stent meets the "substantially parallel" limitation in claims 1 and 23. Boston Scientific asserts that the Liberté stent's banana-shaped slots are not substantially parallel to the stent's longitudinal axis. The district court cited testimony of both parties' experts to support its finding that Cordis provided sufficient evidence to support the jury's infringement verdict under the "substantially parallel" limitation. Memorandum Opinion, 2006 WL 1305227, at *10. We conclude that substantial evidence supported the jury's verdict.

Boston Scientific further asserts that the district court's exclusion of the deposition testimony about the Liberté stent by Dr. Palmaz, the inventor of the '762 patent, warrants a new trial. Dr. Palmaz testified during a deposition that the slots of the Liberté stent "deviate from the longitudinal axis" of the stent. J.A. at 11,520. The district court excluded this testimony, finding that Dr. Palmaz was not an expert on the Liberté stent and that his testimony did not provide relevant evidence of infringement and created a risk of prejudice. Memorandum Opinion, 2006 WL 1305227, at *14. Boston Scientific argues that this testimony of Dr. Palmaz was important in defining the meaning of the claim term "substantially parallel" and in rebutting Cordis's evidence that the Liberté stent infringed claims 1 and 23 of the '762 patent. As noted earlier, claim construction cannot be argued to the jury. CytoLogix Corp., 424 F.3d at 1172-73; see also Sundance, 550 F.3d at 1364 n.6. "[I]nventor testimony as to the inventor's subjective intent is irrelevant to the issue of claim construction," and as the inventor of the '762 patent, Dr. Palmaz also had no special expertise regarding the alleged infringement of the patent by the Liberté stent. Howmedica Osteonics Corp. v. Wright Med.

Tech., Inc., 540 F.3d 1337, 1346-47 (Fed. Cir. 2008); see also Air Turbine Tech., Inc. v. Atlas Copco AB, 410 F.3d 701, 714 (Fed. Cir. 2005). The district court's exclusion of the Liberté stent portion of Dr. Palmaz's deposition testimony was within its discretion.

We affirm the district court's denial of Boston Scientific's motion for judgment as a matter of law or a new trial that the Liberté stent does not infringe claims 1 and 23 of the '762 patent under the "substantially parallel" limitation of these claims.

E. "Wave"

Boston Scientific contends that the jury erred in finding that the Liberté stent infringes claim 2 of the '406 patent, and that the district court erred in denying Boston Scientific's motion for judgment as a matter of law of noninfringement. Claim 2 of the '406 patent depends from claim 1. '406 patent col.5 ll.39-41. The parties agree that the Liberté stent infringes all limitations of claim 2, except the limitation in claim 1 (on which claim 2 depends) describing "a plurality of longitudinally disposed bands, wherein each band defines a generally continuous wave having a spatial frequency along a line segment parallel to the longitudinal axis." '406 patent col.5 ll.29-32 (emphasis added).

First, Boston Scientific argues that the district court improperly refused to construe the term "wave" in claim 1. In fact, the district court did construe the claim language "longitudinally disposed bands, wherein each band defines a generally continuous wave having a spatial frequency along a line segment parallel to the longitudinal axis" as "the stent has multiple elongated surfaces that run parallel to the stent's long axis, each of these surfaces having the undulating appearance of a continuous wave," though it

did not separately construe the term "wave." Claim Construction, 2005 WL 1322966, at *1.

As the district court pointed out, Boston Scientific did not suggest until after the close of the trial that the district court was required to construe the term "wave" in any other respect. Memorandum Opinion, 2006 WL 1305227, at *6. Under Conoco, this argument thus was not timely raised before the district court and has been waived. 460 F.3d at 1359.

Alternatively, Boston Scientific argues that even under the district court's claim construction, the evidence did not sufficiently support the jury's infringement verdict. This contention is without merit. The district court cited testimony by Cordis's expert Dr. Buller applying the court's claim construction and describing how the Liberté stent meets the limitations of claim 2 of the '406 patent. Memorandum Opinion, 2006 WL 1305227, at *4 . We conclude that Cordis presented substantial evidence to support the jury's infringement verdict.

We affirm the district court's denial of Boston Scientific's motion for judgment as a matter of law that the Liberté stent does not infringe claim 2 of the '406 patent.

F. Dismissal without prejudice

The district court granted Boston Scientific's motion for judgment as a matter of law that its Taxus Liberté stent (not to be confused with its Liberté stent or its Taxus Express stent) did not infringe the asserted claims of Cordis's '762 and '406 patents. The district court held that it did not have jurisdiction to consider infringement claims relating to the Taxus Liberté stent because that stent had "no nexus to the United States." Memorandum Opinion, 2006 WL 1305227, at *24.

However, Boston Scientific argues that the district court erred in dismissing Cordis's infringement claims against the Taxus Liberté stent without prejudice, rather than with prejudice, and asserts that Cordis failed to prove that the Taxus Liberté stent infringed the asserted claims of the '762 and '406 patents. Cordis asserts that it did not present evidence at trial that the Taxus Liberté stent infringed the asserted claims of the '762 and '406 patents under 35 U.S.C. § 271(f) because it believed such evidence related only to damages rather than to infringement liability.[17]

"Congress has not clearly stated in 35 U.S.C. § 271 or in any other statute that § 271's requirement that the infringing act happen within the United States is a threshold jurisdictional requirement as opposed to an element of the claim." Litecubes, LLC v. N. Light Prods., Inc., 523 F.3d 1353, 1363 (Fed. Cir. 2008), cert. denied sub nom. GlowProducts.com v. Litecubes, LLC, 129 S. Ct. 578 (2008). Thus, the question of whether the Taxus Liberté stent had a nexus to the United States was an element of Cordis's liability claims, rather than a jurisdictional requirement. Because "a failure to prove the allegations alleged in a complaint requires a decision on the merits, not a dismissal for lack of subject matter jurisdiction," id. at 1361, the district court's dismissal of Cordis's infringement claims regarding the Taxus Liberté stent should have been with prejudice.

We reverse the district court's dismissal without prejudice of Cordis's claims that the Taxus Liberté stent infringed the asserted claims of the '762 and '406 patents,

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[17] Cordis argues that the Taxus Liberté stent has the same structure as the Liberté stent. We see no error in the district court's determination that the Taxus Liberté stent and the Liberté stent are different products.

and remand with instructions to dismiss the claims with prejudice.

III

We affirm the district court's judgment in all respects save one. We reverse the district court's dismissal without prejudice of Cordis's claims that the Taxus Liberté stent infringed the asserted claims of the '762 and '406 patents, and remand with instructions to dismiss the claims with prejudice.

AFFIRMED-IN-PART, REVERSED-IN-PART, REMANDED

COSTS

No costs.

APPENDIX B

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

CORDIS CORPORATION,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Civ. No. 03-027-SLR
	)	
BOSTON SCIENTIFIC CORPORATION and SCIMED LIFE SYSTEMS, INC.,	)	
	)	
	)	
	)	
Defendants.	)	

O R D E R

At Wilmington this 11th day of May, 2006, consistent with the memorandum opinion issued this same date;

IT IS ORDERED that:

1. BSC's renewed motion for judgment as a matter of law of noninfringement and invalidity (D.I. 378) is denied;

2. BSC's motion for reconsideration of the without prejudice aspect of the court's order dismissing Cordis' infringement claims against the Taxus Liberté stent (D.I. 382) is denied; and

3. Cordis' renewed motion for judgment as a matter of law, or, in the alternative, a new trial on

infingement and invalidity of the '021 patent (D.I. 398) is denied.

4. The Clerk of Court is directed to enter judgment consistent with the verdicts (D.I. 360, D.I. 381) reached by each of the juries.

United States District Judge

APPENDIX C

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

CORDIS CORPORATION,	)
	)
Plaintiff,	)
	)
v.	)Civ. No. 03-027-SLR
	)
BOSTON SCIENTIFIC CORPORATION and SCIMED LIFE SYSTEMS, INC.,	)
	)
Defendants.	)
	)
BOSTON SCIENTIFIC SCIMED, INC. and BOSTON SCIENTIFIC CORPORATION,	)
	)
Plaintiffs,	)
	)
v.	)Civ. No. 03-283-SLR
	)
CORDIS CORPORATION and JOHNSON AND JOHNSON, INC.,	)
	)
Defendants.	)

MEMORANDUM ORDER

At Wilmington this 24th day of September, 2007, having reviewed the various pending motions of Cordis Corporation ("Cordis") in the above captioned cases, and the papers filed in connection therewith;

IT IS ORDERED that Cordis's motion for judgment as a matter of law or, in the alternative, a new trial, on infringement of U.S. Patent No. 5,922,021 ("the '021 patent") (Civ. No. 03-027-SLR, D.I. 426) is denied, for the reasons that follow:

1. **Procedural background**. The above captioned litigation involves cross-claims of infringement by Cordis and Boston Scientific Corporation ("BSC"),[1] which parties count among the major players in the very lucrative medical device market related to interventional cardiology. More specifically, the patents at issue relate to stents, construed in this case as "tubular structure[s] left inside a vessel to hold the vessel open." Stent technology has advanced over the years (and the focus of the litigation has evolved) from various designs of bare metal stents to using those same designs as platforms for drug-eluting stents ("DES").

2. With respect to the instant litigation, the two cases were tried to separate juries and, in June 2005, the following verdicts were returned: (a) BSC's Express, Taxus Express, and Express Biliary stents (collectively, "the Express stents"), as well as the Liberte stents, literally infringe claim 23 of U. S. Patent No. 4,739,762 ("the '762 patent"); (b) BSC has induced literal infringement of claim 1 of the '762 patent with respect to those stents; (c) the Liberte stent literally infringes claim 2 of U.S. Patent No. 5,895,406 ("the '406 patent"); (d) claim 2 of the '406 patent is neither anticipated nor rendered obvious by the prior art; (e) Cordis's Cypher stent infringes claim 8 of U.S. Patent No. 6,120,536

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[1] The parties to this litigation have undergone various corporate iterations. For ease of reference, however, the court has designated only "Cordis" and "BSC" as the primary litigants.

("the '536 patent"); (f) claim 8 of the '536 patent is not invalid for obviousness; (g) Cordis' Cypher, BX Velocity, BX Sonic and Genesis stents do not literally infringe claim 36 of the '021 patent; (h) the Cypher, BX Velocity, BX Sonic and Genesis stents infringe the "corners" limitation of claim 36 of the '021 patent under the doctrine of equivalents; and (i) claim 36 of the '021 patent is not invalid for obviousness. (Civ. No. 03-027-SLR, D.I. 360, 381) The parties filed post-trial motions, which were resolved by memorandum opinion and order dated May 11, 2006. (Civ. No. 03-027-SLR, D.I. 416, 417) Cordis has since filed a motion for reconsideration,[2] the pending motion for judgment as a matter of law (its second such motion), and a motion for a new trial on the '536 patent based on newly discovered evidence concerning the incidence of late thrombosis (Civ. No. 03-283-SLR, D.I. 515).

3. Shortly before trial was conducted in the above captioned cases, the named inventor of the '021 patent, G. David Jang, M.D. ("Dr. Jang"), filed suit against BSC in the Central District of California. (D.I. 427 at ex. A) In his lawsuit, Dr. Jang charged, inter alia, that BSC was in violation of a certain Assignment Agreement whereby BSC had agreed to pay Dr. Jang up to $160 million based on revenues generated by products developed by BSC that incorporated Dr. Jang's coronary stent technology or patents, including the '021 patent. In order to determine whether BSC's stents were subject to the payment obligation (i.e., whether the BSC stents were "Contingent Payment Products" under the Assignment Agreement), the court had to determine whether the stents infringed the '021 patent. Consistent with the familiar two-step infringement analysis, the court construed the disputed claim limitations of the '021

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[2] (Civ. No. 03-027-SLR, D.I. 418, resolved by D.I. 429)

patent. (D.I. 427 at ex. F)

4. **Analysis.** Cordis asserts at bar that this court should adopt the claim construction that BSC successfully advocated in the California case and should enter judgment of noninfringement based on that claim construction. The court agrees with Cordis in principle that courts are free to revise their interlocutory rulings on claim construction at any time prior to the entry of judgment and that, generally, a patent's claim limitations should be construed consistently from one party to another. Nevertheless, the court declines to overturn the jury verdict (a verdict that followed a voluminous motion practice) under the circumstances at bar. Significantly, Cordis never presented to this court for its consideration the specific claim construction disputes now identified by Cordis as being critical to its noninfringement case. (Compare, e.g., Civ. No. 03-027-SLR, D.I. 307, 368 with DA. 427 and exs. C and F) Cordis is not only asking the court to nullify a multitude of proceedings based on post-trial stratagems[3] but, in essence, Cordis is asking the court to embrace a claim construction that is neither binding on the court nor necessarily persuasive[4] The court declines to exercise its discretion in this manner.

IT IS FURTHER ORDERED that Cordis' motion for a new trial on the '536 patent based on newly discovered evidence concerning the incidence of late thrombosis (Civ.

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[3] The court acknowledges that Cordis moved to stay trial on the '021 patent just days before trial was to commence, which motion was denied by the court. (Civ. No. 03-027-SLR, D.I. 342, 351)

[4] According to Cordis, the court in California adopted the construction of the claim limitations at issue as advocated by BSC.

No. 03-283-SLR, D.I. 515) is denied, for the reasons that follow:

1. **Factual background**. Unlike the '021 patent, which covers bare metal stents, the '536 patent is directed at a DES whose "topcoat" comprises "a biostable, non-thrombogenic material which provides long-term non-thrombogenicity to the device portion during and after release" of the drug. The above quoted limitation of claim 1 of the '536 patent[5] was construed by the court to mean "a material that does not promote thrombosis for a period of time that extends both during and after release of the biologically active material." (Civ. No. 03-283-SLR, D.I. 368) During the course of the trial, all parties conceded that bare metal stents were known to be thrombogenic, and that the thrombosis rates for Cordis's Cypher stent and bare metal stents were essentially the same. Based on this undisputed evidence, Cordis argued to the jury that the material in the Cypher's topcoat was not "non-thrombogenic" within the meaning of claim 8; BSC argued to the jury that the Cypher stent cannot be said to "promote" thrombosis because there are no additional thrombosis problems over bare metal stents.

2. More than a year after the jury reached its verdict in favor of BSC on this issue, the FDA announced the following:

> We are aware of recent data suggesting a small but significant increase in the rate of death and myocardial infarction (heart attack) possibly due to stent thrombosis (a blood clot in the stent) in patients treated with DES [drug-eluting stents]. The specific studies that

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[5] Claim 8 of the '536 patent depends from claim 1.

have prompted recent media inquiries are the BASKET-LATE study (presented at the March 2006 American College of Cardiology Scientific Sessions in Atlanta, Ga.) and more recently, the Camenzind meta-analysis (presented at the September 2006 European Society of Cardiology Annual Meeting/World Congress of Cardiology Meeting in Barcelona, Spain). The small but significant increase in the rate of death and myocardial infarction observed in these studies was noted in patients followed 18 months to 3 years after stent implantation.

While the studies presented at the Atlanta and Barcelona meetings have raised important questions, the data we currently have do not allow us to fully characterize the mechanism, risks, and incidence of DES thrombosis. A more formal evaluation of the data in these studies is necessary, and any conclusions are dependent upon a thorough peer review. FDA intends to more formally evaluate the studies presented in Atlanta and Barcelona.

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At this time, FDA believes that coronary DES remain safe and effective when used in patients having clinical and coronary anatomic features similar to those treated in the pivotal trials conducted by the manufacturers for FDA approval. The approved indications are:

- The CYPHER Sirolimus-eluting Coronary Stent is indicated for improving coronary luminal

diameter in patients with symptomatic ischemic disease due to discrete de novo lesions of length < 30 mm in native coronary arteries with reference vessel diameter of >2.5 mm to < 3.5mm.

- The TAXUS Express Paclitaxel-Eluting Coronary Stent System is indicated for improving luminal diameter for the treatment of de novo lesions < 28 mm in length in native coronary arteries >2.5mm to < 3.75 mm in diameter.

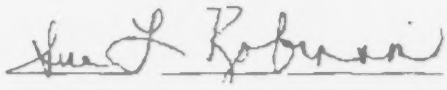
(Civ. No. 03-283-SLR, D.I. 522 at ex. G) As far as the court knows, the Cypher and Taxus stents are still on the market.

3. **Analysis**. Cordis argues in its motion that BSC should either dismiss the case or the court should grant a new trial based on the "newly discovered" evidence summarized above which, according to Cordis, demonstrates conclusively that the Cypher topcoat is not a non-thrombogenic material (or, at least, is evidence that a jury should take into consideration in making its infringement determination). The problem, of course, with Cordis' argument is that the FDA has done no more than identify an additional, medically acceptable, risk associated with the use of DES (an increase in the rate of death and heart attack), has opined that this risk is only "**possibly due to stent thrombosis**," and has explained that it cannot "fully characterize the mechanism, risks, or incidence of DES thrombosis." (Civ. No. 03-283-SLR, D.I. 522 at ex. G) (emphasis added) This "evidence" may well inflame a jury; the question is whether it would inform a jury.

4. The court concludes that the evidence identified by Cordis is too speculative to warrant either a dismissal or a new trial.[6]

IT IS FURTHER ORDERED that the Clerk of Court enter judgment consistent with the jury verdicts returned in these cases.

IT IS FURTHER ORDERED that the court will not consider any further motion practice, by any party, in connection with these cases until a final decision has been issued by the United States Court of Appeals for the Federal Circuit.



United States District Judge

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[6] Even assuming that a causative relationship is established between the "material" at issue in claim 8 of the '536 patent and an increased risk of thrombosis, the court queries whether, in the field of interventional cardiology (or in any medical field), a drug that does not promote thrombosis in the vast majority of the patient population (and which is indicated for only this portion of the population) could be medically or legally characterized as thrombogenic, consistent with the court's claim construction.

APPENDIX D

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

CORDIS CORPORATION,	)	
	)	
Plaintiff,	)	
	)	
v.	)	
	)	Civ. No. 03-027-SLR
BOSTON SCIENTIFIC CORPORATION and SCIMED LIFE SYSTEMS, INC.,	)	
	)	
Defendants.	)	

Steven J. Balick, Esquire, John G. Day, Esquire and Tiffany Geyer Lydon, Esquire of Ashby & Geddes, Wilmington, Delaware. Counsel for Cordis Corporation. Of Counsel: Gregory L. Diskant, Esquire, William F. Cavanaugh, Esquire, Kim J. Landsman, Esquire, Eugene M. Gelernter, Esquire, Thomas W. Pippert, Esquire, Kathleen M. Crotty, Esquire, Scott W. Parker, Esquire, Rosa E. Son, Esquire, Catherine A. Williams, Esquire and Laura Storto, Esquire of Patterson, Belknap, Webb & Tyler, LLP, New York, New York, and Theodore B. Van Itallie, Esquire and Eric I. Harris, Esquire of Johnson & Johnson, New Brunswick, New Jersey.

Josy W. Ingersoll, Esquire, John W. Shaw, Esquire, Adam W. Poff, Esquire, Glenn C. Mandalas, Esquire and Karen E. Keller, Esquire of Young Conaway Stargatt & Taylor, LLP, Wilmington, Delaware. Counsel for Boston Scientific Corporation and Boston Scientific Scimed, Inc. Of Counsel: John M. Desmarais, Esquire and Peter J. Armenio, Esquire of

Kirkland & Ellis, New York, New York.

MEMORANDUM OPINION

Dated: May 11, 2006
Wilmington, Delaware

United States District Judge

ROBINSON, Chief Judge

I. INTRODUCTION

On January 13, 2003, plaintiff Cordis Corporation ("Cordis") filed this patent infringement action against defendants Boston Scientific Corporation and Scimed Life Systems, Incorporated (collectively "BSC") alleging infringement of U.S. Patent No. 4,739,762 ("the '762 patent") by BSC's Express stent and other stents. (D.I. 1) On March 5, 2003, BSC answered and counterclaimed against Cordis, denying that its stents infringe the '762 patent and alleging that some of Cordis' stents infringed U.S. Patent No. 5,922,021 ("the '021 patent"). (D.I. 26) On August 2, 2004, Cordis filed an amended complaint alleging that BSC's Liberté stent infringes the '762 patent and U.S. Patent No. 5,895,406 ("the '406 patent"). (D.I. 161) On August 18, 2004, BSC answered the amended complaint. (D.I. 163) A jury trial was held from June 13, 2005 to June 20, 2005 on the issue of Cordis' claims of patent infringement against BSC. On June 21, 2005, the jury returned a verdict that: (1) the Express, Taxus Express, Express Biliary stents (collectively, "the Express stents") and Liberté stents literally infringe claim 23 of the '762 patent; (2) BSC has induced literal infringement of claim 1 of the '762 patent with respect to those stents; (3) the Liberté stent literally infringes claim 2 of the '406 patent; and (4) claim 2 of the '406 patent is neither anticipated nor rendered obvious by the prior art. (D.I. 360) A separate jury trial was held from June 21, 2005 to July 1, 2005 on the issue of BSC's claims of patent infringement against Cordis. On July 1, 2005, the jury returned a verdict that: (1) Cordis' Cypher stent infringes claim 8 of the '536 patent; (2) claim 8 of the '536 patent is not invalid for obviousness; (3) Cordis' Cypher, BX Velocity, BX Sonic and Genesis stents do not literally infringe claim 36 of the '021 patent; (4) the Cypher, BX Velocity, BX Sonic and Genesis stents infringe the "corners" limitation of claim 36 of the '021 patent under the doctrine of equivalents; and (5) claim 36 of the '021 patent is not invalid for obviousness. (D.I. 381)

This court has jurisdiction pursuant to 28 U.S.C. § 1338. Pending before the court are: (1) BSC's renewed motion for judgment as a matter of law of noninfringement and invalidity; (2) BSC's motion for reconsideration of the without prejudice aspect of the court's order dismissing Cordis' infringement claims against the Taxus Liberté stent; and (3) Cordis' renewed motion for judgment as a matter of law or, in the alternative, a new trial on infringement and invalidity of the '021 patent. (D.I. 378, 382, 398)

II. BACKGROUND

The disputes relate to expandable stents such as those disclosed in the '762, '406 and '021 patents. Balloon expandable stents and other types of stents are used to treat diseased blood vessels in the heart and in other areas of the body. A stent is a small device that holds open an artery just like scaffolding inside a tunnel keeps the tunnel from collapsing. At issue in this case are balloon expandable stents which are used in conjunction with angioplasty balloons. The stent is placed on a balloon and inserted into an artery via a catheter. Once the balloon is at the area of blockage, it is inflated, which causes the stent to expand and press against the vessel wall, thereby opening the artery. The balloon is then deflated and removed, leaving the expanded stent in the artery to keep the vessel open and allow blood to flow.

The '762 patent, entitled "Expandable Intraluminal Graft, and Method and Apparatus for Implanting an Expandable Intraluminal Graft," includes both apparatus and method claims. The apparatus claims are directed to an expandable tubular member that serves as vascular scaffolding. The method claims of the '762 patent describe the process of implanting the stent into a diseased vessel. The devices accused of infringing the '762 patent are the

Express, Taxus Express, Express Biliary and Liberté stents, each of which is a balloon expandable stent.

The '406 patent, entitled "Axially Flexible Stent," includes several apparatus claims. These claims are directed to a stent comprised of longitudinally disposed bands, where each band defines a generally continuous wave, various links maintain the bands in a tubular structure, and the links and bands define an expandable structure having axial flexibility in an unexpanded configuration. The device accused of infringing this patent is the Liberté stent.

The '021 patent, entitled "Intravascular Stent," also includes numerous apparatus claims. The apparatus claims at issue are directed to a stent comprising a first expansion strut column, a second expansion strut column, and a first connecting strut column. The device accused of infringing the '021 patent is the BX Velocity stent, a balloon expandable stent.

III. STANDARD OF REVIEW

A. Renewed Motion for Judgment as a Matter of Law

BSC has renewed its motion for judgment as a matter of law pursuant to Fed. R. Civ. P. 50(b). Cordis has also renewed its motion for judgment as a matter of law. To prevail on a renewed motion for judgment as a matter of law following a jury trial, the moving party "'must show that the jury's findings, presumed or express, are not supported by substantial evidence or, if they were, that the legal conclusion(s) implied [by] the jury's verdict cannot in law be supported by those findings.'" Pannu v. Iolab Corp., 155 F.3d 1344, 1348 (Fed. Cir. 1998) (quoting Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 893 (Fed. Cir. 1984)). "'Substantial' evidence is such relevant evidence

from the record taken as a whole as might be accepted by a reasonable mind as adequate to support the finding under review." Perkin-Elmer Corp., 732 F.2d at 893. In assessing the sufficiency of the evidence, the court must give the nonmoving party, "as [the] verdict winner, the benefit of all logical inferences that could be drawn from the evidence presented, resolve all conflicts in the evidence in his favor and, in general, view the record in the light most favorable to him." Williamson v. Consol. Rail Corp., 926 F.2d 1344, 1348 (3d Cir. 1991); Perkin-Elmer Corp., 732 F.2d at 893. The court may not determine the credibility of the witnesses nor "substitute its choice for that of the jury between conflicting elements of the evidence." Perkin-Elmer Corp., 732 F.2d at 893. In sum, the court must determine whether the evidence reasonably supports the jury's verdict. See Dawn Equip. Co. v. Kentucky Farms Inc., 140 F.3d 1009, 1014 (Fed. Cir. 1998).

Likewise, in order to promote finality after trial, as well as to preserve the historical function of the jury as the trier of facts, the court "ought to grant a new trial on the basis that the verdict was against the weight of the evidence only where a miscarriage of justice would result if the verdict were to stand." Williamson v. Consolidated Rail Corp., 926 F.2d 1344, 1352 (3d Cir. 1991).

B. Motion for a New Trial

In the alternative to its motion for judgment as a matter of law, BSC has moved for a new trial pursuant to Fed. R. Civ. P. 59(a). Cordis has also moved for a new trial as an alternative to its motion for judgment as a matter of

law.[1] Federal Rule of Civil Procedure 59(a) provides, in pertinent part:

> A new trial may be granted to all or any of the parties and on all or part of the issues in an action in which there has been a trial by jury, for any of the reasons for which new trials have heretofore been granted in actions at law in the courts of the United States.

Fed. R. Civ. P. 59(a). The decision to grant or deny a new trial is within the sound discretion of the trial court and, unlike the standard for determining judgment as a matter of law, the court need not view the evidence in the light most favorable to the verdict winner. See Allied Chem. Corp. v. Darflon, Inc., 449 U.S. 33, 36 (1980); Olefins Trading, Inc. v. Han Yang Chem. Corp., 9 F.3d 282 (1993); LifeScan Inc. v. Home Diagnostics, Inc., 103 F. Supp.2d 345, 350 (D. Del. 2000) (citations omitted). See also 9A Wright & Miller, Federal Practice and Procedure § 2531 (2d ed. 1994) ("On a motion for new trial the court may consider the credibility of witnesses and the weight of the evidence."). Among the most common reasons for granting a new trial are: (1) the jury's verdict is against the clear weight of the evidence, and a new trial must be granted to prevent a miscarriage of justice; (2) newly-discovered evidence exists that would likely alter the outcome of the trial; (3) improper conduct by an attorney or the court unfairly influenced the verdict; or (4) the jury's verdict was facially inconsistent. See Zarow-Smith v. N.J. Transit Rail Operations, 953 F. Supp. 581, 584-85 (D.N.J. 1997) (citations omitted). The court must proceed cautiously, mindful that it should not simply substitute its

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[1] Although BSC does not denominate its motion as one for a new trial in the alternative, it argues in that motion that a new trial should be granted if the court does not grant BSC's motion for judgment as a matter of law.

own judgment of the facts and the credibility of the witnesses for those of the jury. Rather, the court should grant a new trial on the basis that the verdict was against the weight of the evidence only where a miscarriage of justice would result if the verdict were to stand. See Williamson v. Consol. Rail Corp., 926 F.2d 1344, 1352 (3d Cir. 1991); EEOC v. State of Del. Dep't of Health and Soc. Servs., 865 F.2d 1408, 1413 (3d Cir. 1989).

C. Motion for Reconsideration

The purpose of a motion for reconsideration is to "correct manifest errors of law or fact or to present newly discovered evidence." Max's Seafood Café ex rel. Lou-Ann, Inc. v. Quinteros, 176 F.3d 669, 677 (3d Cir. 1999). Accordingly, a court may alter or amend a ruling if the movant demonstrates at least one of the following: (1) a change in the controlling law; (2) availability of new evidence not available when the decision issued; or (3) a need to correct a clear error of law or fact or to prevent manifest injustice. See id.

IV. DISCUSSION

A. BSC's Renewed Motion for Judgment as a Matter of Law of Noninfringement and Invalidity

BSC moves for judgment as a matter of law or, in the alternative, a new trial with respect to several issues: (1) noninfringement of the '406 patent; (2) invalidity of the '406 patent; and (3) noninfringement of the '762 patent. (D.I. 378)

1. Infringement of the '406 Patent

A determination of infringement requires a two-step analysis. First, the court must construe the asserted claims so

as to ascertain their meaning and scope. Second, the claims as construed are compared to the accused product. See KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1355 (Fed. Cir. 2000). Claim construction is a question of law while infringement is a question of fact. See id. To establish literal infringement, "every limitation set forth in a claim must be found in an accused product, exactly." Southwall Tech., Inc. v. Cardinal 1G Co., 54 F.3d 1570, 1575 (Fed. Cir. 1995). An accused product that does not literally infringe a claim may still infringe under the doctrine of equivalents if each limitation of the claim is met in the accused product either literally or equivalently. See Sextant Avionique, S.A. v. Analog Devices, Inc., 172 F.3d 817, 826 (Fed. Cir. 1999).

Pursuant to its motion, BSC argues that the court should grant judgment as a matter of law that the Liberté stent does not infringe claim 2 of the '406 patent. (D.I. 402) Alternatively, BSC argues that a new trial on the issue of infringement is necessary. (Id.)

In support of its argument that the court should grant judgment as a matter of law that the Liberté stent does not infringe the '406 patent, BSC offers two arguments. First, BSC argues that "Cordis improperly argued that a combination of open space and metal forms the 'wave' required by claim 2 of the Gray '402 patent." (D.I. 402 at 5-8) Secondly, BSC contends that "Cordis failed to introduce any competent evidence that the metal of the Liberté stent was a 'wave' under the court's claim construction." (D.I. 402 at 8-10)

At trial, Cordis argued that claim 2 of the '406 patent was infringed by BSC's Liberté stent.[2] BSC argues that the

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[2] Claim 2 of the '406 patent depends from claim 1, which reads in relevant part:

Liberté stent does not infringe claim 2 because it does not meet the "wave" limitation of claim 2 as construed by the court[3] since only metal surfaces can form the "wave" structure. BSC cites to the cross-examination testimony of Cordis' expert, Dr. Buller, to suggest that "the metal surfaces of the Liberté stent must form the claimed 'wave' in order for there to be infringement." (D.I. 402 at 8, citing D.I. 366 at 699:4-24) BSC contends that Cordis' argument that the Liberté stent infringes claim 2 because it has "circumferential and longitudinal 'springs'" is insufficient to meet the "wave"

> A stent having first and second ends with an intermediate section therebetween, and a longitudinal axis, comprising:
>
> a plurality of longitudinally disposed bands, wherein each band defines a generally continuous wave having a spatial frequency along a lone segment parallel to the longitudinal axis; . . .

'406 patent, col. 5, 11. 26-32. Claim 2 of the '406 patent reads as follows:

> A stent according to claim 1, wherein each link is axially displaced from any circumferentially adjacent link.

'406 patent, col. 5, 11. 40-41.

[3] The "wave" limitation - "a plurality of longitudinally disposed bands, wherein each band defines a generally continuous wave having a spatial frequency along a lone segment parallel to the longitudinal axis" - was construed by the court to mean "the stent has multiple elongated surfaces that run parallel to the stent's long axis, each of these surfaces having the undulating appearance of a continuous wave." (D.I. 334 at 2-3)

limitation and cannot prove infringement. (D.I. 402 at 8-9) However, as Cordis correctly points out, the '406 specification refers to the "waves" as "springs" and notes that they "provide the stent with . . flexibility." (D.I. 404 at 3, citing '406 patent, col. 3, l. 66 - col. 4, l. 31) BSC contends that "[t]he term 'springs' cannot serve as a surrogate for the claim term 'wave.'" Nevertheless, even if the evidence offered by Cordis regarding "springs" were alone insufficient to prove infringement, Dr. Buller also applied the court's claim construction, premised on the term "wave", to suggest that the Liberté stent infringed claim 2 of the '406 patent. (D.I. 365 at 523:1-538:22) BSC next argues that, aside from irrelevant testimony concerning "springs", Dr. Buller offered "only conclusory assertions that the Liberté stent satisfied the 'wave' limitation." (D.I. 402 at 9, citing D.I. 365 at 526:15-21, 527:13-19; D.I. 366 at 558:12-559:13) However, Dr. Buller appears to have provided some context to his assertions by explaining that the Liberté stent has a plurality of longitudinal bands, that a longitudinal band of the Liberté stent "fairly can be described as an undulating structure going from end to end of the stent," and that each such band defines a continuous wave under the court's construction. (D.I. 365 at 523:1-538:22; D.I. 366 at 725:3-7) Furthermore, Dr. Buller addressed other limitations of claim 2 in explaining that the links and wavy longitudinal bands in the Liberté stent define "an expandable structure having axial flexibility in an unexpanded configur ation," as required by claim 2. (D.I. 365 at 531:18-532:7) In light of this evidence, a reasonable jury could find that the Liberté stent infringes claim 2 of the '406 patent. Therefore, the court shall deny BSC's request for judgment as a matter of law that the Liberté stent does not infringe claim 2 of the '406 patent.

As an alternative to its motion for judgment as a matter of law, BSC argues that the court should order a new trial on the issue of infringement. First, BSC contends that the jury's verdict was against the weight of the evidence.

(D.I. 402 at 10-11) Second, BSC maintains that "a new trial is warranted because the disputed claim term 'wave' was not construed." (D.I. 420 at 11-12)

In arguing that the jury's verdict was against the weight of the evidence, BSC suggests that, while Cordis provided only conclusory evidence that the Liberté stent met the "wave" limitation of claim 2 of the '406 patent, BSC provided "overwhelming evidence that the backtracking metal of that stent could not possibly satisfy that limitation under any proper construction of the term 'wave.'" (D.I. 402 at 10) However, BSC offered a similar argument at the claim construction phase of trial, when it argued that "wave" should be construed as a "naturally occurring waveform that cannot backtrack along the longitudinal axis." (D.I. 230 at 29) However, the court did not adopt such a construction, instead construing the "wave" limitation to mean that "the stent has multiple elongated surfaces that run parallel to the stent's long axis, each of these surfaces having the undulating appearance of a continuous wave." (D.I. 334 at 2-3) While Dr. Moore testified as an expert for BSC that a structure such as that of the Liberté stent which "loops back" on itself cannot be a "wave" (D.I. 368 at 1185:81186:1), Dr. Buller offered contrary testimony in suggesting that the bands of the Liberté stent had an undulating structure which could be viewed as a continuous wave (D.I. 365 at 523:1-538:22; D.I. 366 at 725:3-7). Based on the evidence offered at trial, the jury was free to credit the testimony of Dr. Buller in finding that the Liberté stent infringed claim 2 of the '406 patent.

BSC also argues that a new trial is warranted because the court committed an error of law since the disputed claim term "wave" was not explicitly construed. Specifically, BSC contends that the court's construction of the "wave" limitation, "[a]lthough providing useful and necessary guidance on other aspects of the 'wave' limitation, . . . did not resolve one of the central disputes between the parties - what

constitutes a 'wave' for purposes of Claim 2 of the Gray '406 patent." (D.I. 402 at 11) BSC cites Sulzer Textil A.G. v. Picanol N.V., 358 F.3d 1356, 1366-67 (Fed. Cir. 2004), to suggest that the court should have instructed the jury on the meanings of all disputed terms used in the claims in suit and that the court failed to do so when it "left the jury free to make its own determination of the meaning of the claims." (D.I. 402 at 11) As the Federal Circuit noted, "The jury must be told that the court has made a claim construction ruling that the jury must follow and cannot be left free to apply its own reading of disputed terms to the facts of the case." Sulzer Textil, 358 F.3d at 1366. In the case at issue, the court met these requirements by advising the jury that the "wave" limitation had been construed, specifically stating its construction, and instructing the jury that it was obligated to apply the court's construction to, inter alia, its infringement analysis. (D.I. 369 at 1543:3-12, 1545:13-20, 1547:16-23)

Aside from the particular construction ascribed to the wave limitation, BSC's contentions at trial appear inconsistent with its argument that the term "wave" was not construed by the court. First, BSC never suggested before or during trial that the "wave" limitation had not been construed. In fact, BSC consistently offered arguments at trial to suggest that the court **had construed** that limitation, although contending that the Liberté stent did not meet that limitation. (D.I. 368 at 1175:10-1176:1, 1192:16-21; D.I. 369 at 1482:4-1490:5, 1488:15-16) As for BSC's argument that the court's use of the phrase "surfaces having the undulating appearance of a continuous wave" was not helpful to the jury in understanding the wave limitation, BSC's own proposed construction of the phrase "generally continuous wave" in that limitation was "a naturally occurring **waveform**." (D.I. 230 at 29) BSC's further suggestion that such a waveform "cannot have multiple circumferential values at any single longitudinal location" (id.) was rejected by the court in its construction. (D.I. 334 at 2-3) BSC

suggests neither how its proposed construction would have provided any additional relevant understanding to the jury regarding the asserted claim when compared with the information provided under the court's construction, nor how any such understanding would have been supported by evidence to affect the verdict on infringement.

As its next assertion, BSC argues that the court's claim construction left room for the jury to disagree on how one of ordinary skill in the art would determine if the Liberté stent met the wave limitation. (D.I. 402 at 11) BSC contends that the jury was presented with various conflicting meanings for the term "wave" at trial such that the jury could "choose an erroneous construction and engage in a fatally-flawed infringement analysis." (D.I. 402 at 11-12) However, these arguments do not impact the appropriateness of the court's claim construction. Claim construction alone cannot be expected to resolve all infringement issues in a case. See United States Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1567 (Fed. Cir. 1997) ("Markman explicitly recognized that the application of the claim to the accused device [is] for the jury."). Here, both parties offered expert testimony and other evidence regarding whether the Liberté stent met the limitations of claim 2 of the '406 patent and such evidence provided substantial support for the verdict reached by the jury as to infringement. As noted above, the court construed the "wave" limitation and properly instructed the jury such that no error was present. Thus, no new trial on the issue of infringement is warranted.

2. Validity of the '406 Patent

A patent is presumed valid and the burden of proving invalidity, whether under § 112 or otherwise, rests with the challenger. See 35 U.S.C. 282. In order to overcome this presumption, the party challenging validity bears the burden of proving by clear and convincing evidence that the

invention fails to meet the requirements of patentability. See Hewlett-Packard Co. v. Bausch & Lomb, 909 F.2d 1464, 1467 (Fed. Cir. 1990). Clear and convincing evidence is evidence that "could place in the ultimate factfinder an abiding conviction that the truth of [the] factual contentions are 'highly probable.'" Colorado v. New Mexico, 467 U.S. 310, 316 (1984).

Under 35 U.S.C. § 102(b), "[a] person shall be entitled to a patent unless the invention was patented or described in a printed publication in this or a foreign country . . . more than one year prior to the date of the application for patent in the United States." A claim is anticipated only if each and every limitation as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631 (Fed. Cir. 1987); Scripps Clinic & Research Found. v. Genentech, Inc., 927 F.2d 1565, 1576 (Fed. Cir. 1991) ("There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention.").

An anticipation inquiry involves two steps. First, the court must construe the claims of the patent in suit as a matter of law. Key Pharms. v. Hercon Laboratories Corp., 161 F.3d 709, 714 (Fed. Cir. 1998). Second, the finder of fact must compare the construed claims against the prior art. Id. A finding of anticipation will invalidate the patent. Applied Med. Res. Corp. v. U.S. Surgical Corp., 147 F.3d 1374, 1378 (Fed. Cir. 1998).

In determining whether a patented invention is explicitly anticipated, the claims are read in the context of the patent specification in which they arise and in which the invention is described. Glaverbel Societe Anonyme v. Northlake Mktg. & Supply, Inc., 45 F.3d 1550, 1554 (Fed. Cir. 1995). The prosecution history and the prior art may be

consulted if needed to impart clarity or to avoid ambiguity in ascertaining whether the invention is novel or was previously known in the art. Id. The prior art need not be *ipsissimis verbis* (i.e., use identical words as those recited in the claims) to be anticipating. Structural Rubber Prods. Co. v. Park Rubber Co., 749 F.2d 707, 716 (Fed. Cir. 1984).

A single prior art reference also may anticipate a claim where one of ordinary skill in the art would have understood each and every claim limitation to have been disclosed inherently in the reference. Continental Can Co. USA Inc. v. Monsanto Co., 948 F.2d 1264, 1268 (Fed. Cir. 1991). The Federal Circuit has explained that an inherent limitation is one that is necessarily present and not one that may be established by probabilities or possibilities. Id. That is, "[t]he mere fact that a certain thing may result from a given set of circumstances is not sufficient." Id. at 1269. The Federal Circuit also has observed that "inherency operates to anticipate entire inventions as well as single limitations within an invention." Schering Corp. v. Geneva Pharms. Inc., 339 F.3d 1373, 1380 (Fed. Cir. 2003). Moreover, recognition of an inherent limitation by a person of ordinary skill in the art before the critical date is not required to establish inherent anticipation. Id. at 1377.

To establish that a patent claim is obvious, clear and convincing evidence must exist to show that "the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. 103 (2003). The question of obviousness, therefore, turns on four factual inquiries: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) any objective indicators of non-obviousness, more commonly termed secondary considerations. See Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966); B.F. Goodrich Co. v. Aircraft Braking Sys.

Corp., 72 F.3d 1577, 1582 (Fed. Cir. 1996). The existence of each limitation of a claim in the prior art does not, by itself, demonstrate obviousness. Instead, there must be a "reason, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to combine the references, and that would also suggest a reasonable likelihood of success." Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc., 183 F.3d 1347, 1356 (Fed. Cir. 1999). "Such a suggestion or motivation may come from the references themselves, from knowledge by those skilled in the art that certain references are of special interest in a field, or even from the nature of the problem to be solved." Id. at 1356.

To rebut a prima facie case of obviousness based on prior art, objective evidence of nonobviousness may be used. Tec Air, Inc. v. Denso Mfg. Mich, Inc., 192 F.3d 1353, 1360 (Fed. Cir. 1999). This objective evidence includes: (1) a long-felt and unmet need in the art for the invention; (2) failure of others to achieve the results of the invention; (3) commercial success of the invention; (4) copying of the invention by others in the field; (5) whether the invention was contrary to accepted wisdom of the prior art; (6) expression of disbelief or skepticism by those skilled in the art upon learning of the invention; (7) unexpected results; (8) praise for the invention by those in the field; and (9) independent invention by others. See Graham, 383 U.S. at 17-19. "The objective evidence of nonobviousness . . . should when present always be considered as an integral part of the analysis." Demaco Corp. v. F. Von Langsdorff Licensing Ltd., 851 F.2d 1387, 1393 (Fed. Cir. 1988) (quoting W.L. Gore & Assocs. Inc. v. Garlock, Inc., 721 F.2d 1540, 1555 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)).

The primary argument offered by BSC in support of its motion is that the evidence at trial established that claim 2 of the '406 patent is invalid such that the court should grant

judgment as a matter of law on this issue. (D.I. 399) In the alternative to this argument, BSC urges the court to grant a new trial on the validity of the '406 patent because the jury's verdict was against the weight of the evidence. (Id.)

In support of its motion for judgment as a matter of law that claim 2 of the '406 patent is invalid, BSC offers three arguments: (1) it presented clear and convincing evidence that the '762 patent discloses each and every limitation of claim 2 of the '406 patent; (2) the only limitation Cordis contested[4] is merely an inherent characteristic of the claimed structure; and (3) even if deemed a structural limitation, the '762 patent discloses "axial flexibility" under the court's construction. (D.I. 399)

As part of its purported "clear and convincing" evidence of invalidity, BSC cites to the testimony of Dr. Moore, whom BSC claims stated that "the Palmaz '762 patent discloses that the rectangular openings or 'slots' shown in the preferred embodiment can take a number of shapes, including 'elongated oval[s].'" (D.I. 399 at 7, citing D.I. 368 at 1196:16-1197:23) BSC argues that such an embodiment of the '762 stent satisfies every limitation of claim 2 of the '406 patent under the court's claim construction. (D.I. 399 at 7-8) BSC also contends that, at a minimum, "the Palmaz '762 patent renders Claim 2 of the Gray '406 patent obvious." (D.I. 399 at 8, citing D.I. 368 at 1205:3-15) In contrast to the assertions of BSC, Cordis maintains that, although Dr. Moore described the '762 patent as having "some degree of flexibility," it was otherwise "universally recognized . . . as being an 'inflexible' stent," as evidenced at trial. (D.I. 405 at 3-4, citing D.I. 364 at 200:19-24, 229:9-19; D.I. 365 at

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[4] The limitation in dispute was the "axial flexibility" limitation. The court construed "axial flexibility" to mean "can bend or flex along its length." (D.I. 334 at 4)

410:9-412:2; D.I. 366 at 728:13-15; D.I. 368 at 1298:24-1299:2, 1299:22-1300:15) Furthermore, Cordis cites to evidence where Dr. Moore admitted that "in the . . . world of stent designers," the "Palmaz stent" was known as "a rigid stent." (D.I. 368 at 1298:24-1299:2) As Cordis pointed out, Dr. Moore also conceded that the FDA-approved labeling for that stent stated that the stent was "not flexible." (D.I. 368 at 1299:22-1300:15) In light of this evidence, the jury was entitled to rely on the evidence that the stent of the '762 patent did not have "axial flexibility" such that it did not anticipate or render obvious claim 2 of the '406 patent.

As its second argument in support of its motion for judgment as a matter of law that claim 2 of the '406 patent is invalid, BSC contends that the only limitation which Cordis contested - the "axial flexibility" limitation[5] - is merely an inherent characteristic of the claimed structure such that the '406 patent is anticipated by the '762 patent. (D.I. 399 at 8-11) BSC relies, in part, on Harris Corp. v. Ixys Corp., 114 F.3d 1149, 1152 (Fed. Cir. 1997), to support this contention and asserts that the Federal Circuit has held that "the 'such that' clause at issue in that case 'does nothing to limit the scope of the claim' because it 'merely restates the basic characteristic of the claimed structure." However, it does not appear from the evidence that "axial flexibility" is a basic characteristic of an unexpanded stent. For example, Cordis has offered evidence that the "axial flexibility" limitation "was added by amendment during prosecution to distinguish Gray's ['406] claimed invention from the prior art." (D.I. 405 at 11) BSC has not offered clear and convincing evidence that unexpanded stents have axial flexibility nor attempted to

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[5] The text of the "axial flexibility" limitation at issue comes from the final clause of claim 1 of the '406 patent, from which claim 2 depends, and reads: "such that the links and bands define an expandable structure having axial flexibility in an unexpanded configuration."

explain why, if that were true, an unexpanded stent could be considered rigid or inflexible, as evidenced by the parties at trial. Furthermore, Cordis counters the argument of BSC by citing various cases which find that the term "such that" and similar terms are often limiting rather than merely used to recite inherent characteristics of a claimed structure. (D.I. 405 at 9-10) Thus, insufficient evidence was offered to establish that "axial flexibility" was an inherent characteristic of the claimed structure.

As its final argument that claim 2 of the '406 patent is invalid, BSC states that even if deemed a structural limitation, the '762 patent discloses "axial flexibility" under the court's construction. (D.I. 399 at 11-18) Cordis responds by noting that "BSC did not offer any contemporaneous evidence that any person of skill in the art viewed it as teaching a flexible stent. (D.I. 405 at 7) As noted above, Cordis introduced evidence that the '762 patent disclosed a "rigid" stent. Furthermore, Cordis argues that the '762 patent can only anticipate the '406 patent if axial flexibility is an inherent characteristic of the version of the '762 patent with oval slots because the '762 patent does not expressly describe any embodiment as being axially flexible. (D.I. 405 at 6) Since BSC failed to provide sufficient evidence that any embodiment of the '762 teaches a flexible stent, the jury was entitled to find that the '762 patent does not anticipate claim 2 of the '406 patent.

Aside from the evidence adduced regarding the nature of the '762 patent, Cordis argues that evidence of secondary considerations provides further support that the '406 patent was nonobvious. (D.I. 405 at 7-8) BSC refutes this evidence in its reply brief, arguing that any evidence of secondary considerations of nonobviousness were negated at trial. (D.I. 411 at 18-19) Nevertheless, the jury was entitled to gauge the evidence regarding secondary considerations in making its determination on the obviousness issue. Therefore, BSC's

motion for judgment as a matter of law of invalidity of claim 2 of the '406 patent shall be denied.

As an alternative to its arguments of invalidity of the '406 patent, BSC contends that the court should order a new trial on the validity of the '406 patent because the jury's verdict was against the weight of the evidence. (D.I. 399) Specifically, BSC argues that "a new trial is warranted because the jury verdict was clearly against the weight of the evidence." (D.I. 399 at 18) However, as reasoned above, Cordis provided sufficient evidence to support the verdict of validity of claim 2 of the '406 patent. Thus, BSC's motion for a new trial on the invalidity of the '406 patent shall be denied.

3. Infringement of the '762 Patent

BSC offers three primary arguments in its motion with respect to the '762 patent. First, BSC argues that the court should grant judgment as a matter of law that the Liberté stent does not infringe claims 1 and 23 of the '762 patent. (D.I. 401) Secondly, BSC urges the court to grant judgment as a matter of law that the Express stents do not infringe claims 1 and 23 of the '762 patent. (Id.) In the alternative to its first two arguments, BSC contends that a new trial is warranted as to all infringement issues regarding the '762 patent. (Id.)

With respect to the Liberté stent, BSC argues that the record reflects that the stent has "banana-shaped openings that run at 30-45 degree angles from the longitudinal axis." (D.I. 401 at 6-10) BSC contends that it moved for summary judgment that the "substantially parallel" claim limitation was not met and asserts that Cordis was able to escape summary judgment before trial only by raising arguments which were never advanced at trial. (D.I. 401 at 11) BSC argues that Cordis instead adopted two new "misleading,

strawman" arguments at trial: (1) "that the Liberté stent has substantially parallel slots merely because the stent is expandable (the 'expandability' argument)"; and (2) "that the Liberté stent has substantially parallel slots merely because the stent is cylindrical in form (the 'Pringles can' argument)." (D.I. 401 at 11) BSC asserts that these new arguments relate neither to the openings of the Liberté stent nor to the claim limitation at issue, thereby offering no support to the jury's verdict of literal infringement. (Id.) However, in contrast to these contentions by BSC, the record does not reflect that Cordis argued that a stent must simply be "expandable" in order to meet the "substantially parallel limitation." At trial, Cordis maintained that a stent with slots that are substantially parallel to the longitudinal axis would allow the diameter of the stent to increase when the slots were opened. (D.I. 365 at 398:15-23) Cordis contrasted this contention with an assertion that a stent with slots that are not substantially parallel to the longitudinal axis of the stent could expand in diameter, but not as a result of slots opening. Cordis suggested that such a stent could increase in length, but not diameter, when the slots were opened. (D.I. 365 at 401:24-402:5) Furthermore, it does not appear that Cordis used the "Pringles can" argument to suggest that every cylindrical stent with slots has "substantially parallel slots"; instead, Cordis offered evidence that the "disposed substantially parallel" limitation "doesn't have to do with whether [the slots] are or aren't the same distance [from the axis]." (D.I. 367 at 784:21-22) The content of this statement by Dr. Buller was supported by the testimony of Dr. Moore. (D.I. 368 at 1105:6-9) In light of this evidence in the record, the jury was entitled to rely on such arguments in rendering its infringement verdict.

In addition to arguing that Cordis failed to introduce sufficient evidence to support a verdict that the Liberté stent literally infringes the '762 patent, BSC contends that Cordis failed to introduce sufficient evidence to support a finding

that the Liberté stent infringes the '762 patent under the doctrine of equivalents. (D.I. 401 at 15-16) The jury did not consider infringement under the doctrine of equivalents since it determined that the Liberté stent literally infringes the '762 patent. Thus, after denying BSC's motion for judgment as a matter of law of noninfringement of the '762 patent by the Liberté stent with respect to literal infringement, there is no reason for the court to consider BSC's contentions regarding the doctrine of equivalents. BSC's motion for judgment as a matter of law of noninfringement of the '762 patent by the Liberté stent under the doctrine of equivalents shall be denied as moot.

As an initial argument that the court should grant judgment as a matter of law that the Express stents do not infringe claims 1 and 23 of the '762 patent, BSC contends that Cordis has "failed to introduce any competent evidence that the EXPRESS stents meet the 'thin-walled' limitation of Claims 1 and 23 of the Palmaz '762 patent." (D.I. 401 at 16) Specifically, BSC suggests that Cordis presented an infringement theory based on a construction of the "thin-walled" limitation which was rejected by the court and which would render that limitations "superfluous in light of the other claim limitations." (D.I. 401 at 16) BSC bases much of this argument on the fact that, in the claim construction phase of the Civ. No. 97-550-SLR action in this court involving BSC's NIR stent, the court rejected Cordis' proposed construction of the term "thin-walled" as meaning "the stent must have a wall thin enough to provide a low enough profile to allow intraluminal delivery and be thin enough so it can be expanded by an angioplasty balloon." (D.I. 401 at 17, Ex. A at 13) BSC argues that Cordis advanced such a "thin enough" theory of infringement at trial and it was insufficient to support the jury's verdict. BSC asserts that the testimony of Dr. Buller suggested that "the 'thin-walled' limitation is met if a structure meets the basic requirements of a balloon-expandable stent - 'thin enough to be delivered safely through

the vasculature,' 'thin enough to be expanded from within' a lumen and 'thin enough to not obstruct the lumen.'" (D.I. 401 at 17, citing D.I. 365 at 451:5-453:14) In addition, BSC contends that this "thin enough" analysis has no bearing on whether the Express stents meet the court's construction of "thin-walled", which requires that "the wall of the tubular member must have little extent from one surface to its opposite at both its first and second diameters." (D.I. 401 at 17; D.I. 334 at 7) Furthermore, BSC maintains that the "thin enough" analysis renders the "thin-walled" limitation superfluous since "the asserted claims both expressly require the same functional capabilities that Dr. Puller applied in lieu of the Court's construction of 'thin-walled.'" (D.I. 401 at 17-18) As an example of such "functional capabilities", BSC cites claim 1, a method claim which comprises such steps as "inserting the prosthesis and catheter within the body passageway", "expanding and deforming the prosthesis at a desired location within the body passageway." (D.I. 401 at 17-18; citing '762 patent, col. 10, l. 61 - col. 11, l. 9) As an additional argument that the Express stents do not infringe the '762 patent, BSC argues that U.S. Patent No. 4,733,665 ("the '665 patent") and the '762 patent derive from the same parent application and share many common terms such that "the 'thin-walled' tubular members of the '762 patent have a narrower meaning than the tubular members of the '665 patent" and the "tubular members of the '762 patent must be even thinner [than the tubular members of the '665 patent]." (D.I. 401 at 18)

In contrast to the assertions of BSC, it appears that Cordis provided sufficient evidence to support the jury verdict of infringement of the '762 patent by the Express stents. As evidence that the Express stents meet the "thin-walled" limitation as construed by the court, Cordis offered evidence from Dr. Buller that: (1) the Express stent is "very thin"; (2) the Express stent is sufficiently thin to serve the purposes that the '762 patent teaches for using a "thin-walled

tubular member"; (3) other stents that practice the '762 patent have thicker walls; and (4) persons in the art used the term "thin" in 1985 to describe a range of thicknesses for stents which include the thickness of the Express stents. (D.I. 406 at 13, citing D.I. 365 at 449:14-463, D.I. 367 at 770:16-782:5) As for the "thin enough" analysis offered by Cordis which was assailed by BSC, it has support in the specification of the '762 patent as interpreted by Dr. Buller. He stated that the Express stent is "thin enough" to serve several of the purposes for a "thin-walled" tubular member as described in the specification of the '762 patent: (1) delivery through the vasculature; (2) extension from within, as by balloon catheter; (3) no obstruction of the lumen when expanded; and (4) no significant damage caused to the vessel wall. (D.I. 365 at 450:24-454:1) Consistent with the claim construction for "thin-walled" offered by the court, Cordis offered evidence that the wall of the tubular member of any of the Express stents must have little extent from one surface to its opposite at both its first and second diameters, or else it would not be able to serve the purposes of a "thin-walled" tubular member. (Id.) In this way, besides offering evidence that the tubular member wall of an Express stent has "little extent from one surface to its opposite at both its first and second diameters", Cordis permissibly provided a context for the "thin-walled" limitation among the other limitations of the '762 patent. As for BSC's contention that the tubular members of the '762 patent must be even thinner than the tubular members of the '665 patent, such a requirement is absent from the court's claim construction and provides little, if any, suggestion as to whether the Express stents infringe the "thin-walled" limitation of the '762 patent. In addition, the Federal Circuit addressed a similar issue in a case involving Cordis' stents and concluded that the differences between the '665 and '762 patents do not mandate a narrow reading of the '762 claims. Cordis v. Medtronic AVE, 339 F.3d 1352, 1357-58 (Fed. Cir. 2003).

As for BSC's contention that Cordis' approach to infringement rendered the "thin-walled" limitation superfluous, it is not unreasonable that, in claim 1, for example, the steps in the method claim "for implanting a prosthesis within a body" include the use of a "thin-walled, tubular member" which is particularly suited for use with the other steps which comprise that method. Moreover, Cordis did not focus merely on this analysis in its infringement approach, as it offered evidence with respect to infringement for each limitation of the asserted claims, such that the "thin-walled" limitation was not treated as superfluous or otherwise redundant of any of the other limitations. (D.I. 365 at 445:13-448:12, 472:13-478:22)

BSC's second argument for judgment as a matter of law of noninfringement is based on the assertion that "Cordis' evidence of the thickness of commercial stents is irrelevant and does not support the jury's verdict" because infringement is determined only be comparing the accused products to the claims of the patent at issue, not by comparing the accused product with the preferred embodiment described in the specification or a commercialized embodiment. (D.I. 401 at 19, citing SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1121 (Fed. Cir. 1985)) BSC suggests that such commercial stents have no relevance to whether the Express stents meet the "thin-walled" limitation as construed by the court. (Id.) In addition, BSC argues that any assertion that such a commercial stent is "thin-walled" is immaterial since the term "thin-walled" does not have a single meaning applicable to all balloon-expandable stents. (Id.) While BSC is correct that an infringement analysis requires a comparison of the accused product with the properly construed claims of the patent, this does not render irrelevant evidence of the preferred embodiment or commercialized embodiments when no direct comparison is made with the accused product. For example, when the Federal Circuit specifically considered this court's construction of the "thin-walled" limitation and

affirmed its ruling at the preliminary injunction stage that Cordis was likely to succeed in proving that the Express stent infringes the '762 patent, it considered "testimony that other infringing stents had thicknesses greater than 0.0045 inches." See Cordis Corp. v. Boston Sci. Corp., 99 Fed. Appx. 928, 933 (Fed. Cir. 2004). While the specific holding of that Federal Circuit ruling does not impact the court's current consideration of infringement, the fact that other infringing stents were considered in evaluating the scope of the claims of the '762 patent suggests that such evidence was not irrelevant to the jury's consideration of infringement by the accused product. Nevertheless, even if such evidence regarding non-accused commercial stents were irrelevant, BSC itself offered argument that the Express stent is thicker than certain commercial stents which stent designers have described as "thin." (D.I. 369 at 1456:6-7) Furthermore, BSC relied on evidence of the thicknesses of several non-Express stents as what it purported to be "substantial evidence proving that the EXPRESS stents are not 'thin-walled.'" (D.I. 401 at 28-29) While BSC argued that the term "thin-walled" does not have a single meaning applicable to all balloon-expandable stents, it nevertheless argued that "a range of wall thicknesses considered by those of skill in the art to be 'thin-walled'" existed and that the Express stents fall outside that range. (D.I. 401 at 20-21) If BSC is concerned that the jury may have considered the allegedly irrelevant arguments of Cordis, any risk of such an occurrence would have been minimized, since the court specifically instructed the jury on how to evaluate infringement and consistently referred to the relevant comparison as that of the asserted claims of the patent with the accused device. (D.I. 369 at 1538:20-1553:5) In light of the inconsistent arguments by BSC and the evidence of infringement offered by Cordis, the court finds that BSC has not shown that Cordis offered insufficient evidence to establish that the Express stents infringe the "thin-walled" limitation of the '762 patent.

As an alternative assertion to its arguments for judgment as a matter of law of noninfringement of the '762 patent by the Express and Liberté stents, BSC contends that a new trial is warranted with respect to all infringement issues concerning the '762 patent. (D.I. 401 at 21-35). As an argument in support of this contention, BSC suggests that the jury's verdict that the Liberté stent and the Express stents infringe the '762 patent was against the weight of the evidence. However, as discussed above, the jury's verdict of infringement had sufficient support from the evidence adduced by the parties. Aside from this argument, BSC urges a new trial due to alleged prejudicial errors by the court during trial.

BSC maintains that the court's exclusion of Dr. Palmaz's testimony concerning the orientation of the "slots" of the Liberté stent constitutes prejudicial error and warrants a new trial on infringement of the Liberté stent.[6] Dr. Buller

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[6] The deposition testimony at issue reads as follows:

Q. Okay. Looking at the Liberté stent now, does this stent have a longitudinal axis?
A. Yes.
Q. Okay. And could you draw the longitudinal axis on one of the pictures of the stent, perhaps the bottom one which is the largest expanded version?
A. Okay. Just draw a lone. Yeah. (Complies [by marking Palmaz, Exhibit 9].) All right.
Q. Now, it is correct that none of the open spaces in this stent are exactly parallel to that longitudinal axis you just drew?
A. That's true .... Yes, that's correct.
Q. And isn't it correct that the open spaces in the Liberté stent deviate from the longitudinal axis you just drew by 45 degrees?
A. I don't know. I assume that you have to measure it. Seems to me that they deviate from the longitudinal axis, that's correct.

had already been cross-examined with a significant portion of the very testimony which BSC now contends was prejudicially excluded. (D.I. 366 at 680:21-681:12) When BSC sought to admit that deposition testimony into evidence, however, Cordis objected on the grounds of irrelevance and the court agreed, noting, "I do not think, though, that the evidence, or the testimony past page 69, in other words, the testimony on the Liberté stent is relevant. He's not an expert. He had never seen it before. His impressions just looking at something, it's not relevant to the jury's deliberation on infringement." (D.I. 368 at 1097:9-14) The exclusion of such testimony pursuant to Fed. R. Civ. P. 701 is appropriate, as "the fact that [the inventor] may have had particularized knowledge and experience as a co-inventor of the claimed invention does not necessarily mean he also had particularized knowledge and experience in the structure and workings of the accused device." See Air Turbine Tech., Inc. v. Atlas Copco AB, 410 F.3d 701, 714 (Fed. Cir. 2005). BSC did not offer any evidence that Dr. Palmaz had "particularized knowledge and experience" with the Liberté stent, only asserting that "Dr. Palmaz was competent to speak to how one of ordinary skill in the art would measure the orientation of the slots relative to the longitudinal axis" and that "Dr. Palmaz has conducted research relating to stents and other vascular devices for over twenty years." (D.I. 401 at 26-27, citing D.I. 364 at 238:12-16) Even had BSC offered evidence that Dr. Palmaz had "particularized knowledge and experience" with the Liberté stent, the deposition testimony in question was not relevant to infringement because it did not use the words of the "substantially parallel" limitation at issue or the claim construction of the court thereon, nor is there any indication from that deposition that Dr. Palmaz was provided with such

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Q. And they deviate quite a bit. Right?
A. Yes, basically.

information when offering his testimony. (D.I. 406, ex. A at 70:2-73:1) Essentially, Dr. Palmaz was asked to offer his opinion regarding a stent with which he was admittedly not familiar and was asked questions which were not sufficiently focused to provide relevant evidence on the issue of infringement. In weighing the limited probative value of this evidence and the risk of undue prejudice that the evidence would cause when considered by the jury, the court correctly excluded this evidence under Federal Rule of Evidence 403.

BSC next argues that the court's exclusion of prosecution history statements concerning the "thin-walled" limitation constitutes prejudicial error and warrants a new trial on infringement of the Express stents. BSC argues that the court "admitted the entire reexamination prosecution history of the Palmaz '762 patent into evidence, confirming its relevance." (D.I. 401 at 31, citing D.I. 366 at 734:13-735:9) In addition, BSC contends that "[t]his document also contains an admission that goes to the very heart of the infringement issue: Cordis' representation to the PTO that a device with a wall thickness of between .0035 and .0045 inches is not 'thin-walled.'" (D.I. 401 at 31-32) According to BSC, it sought to rely on such evidence to show that "Cordis admitted that a device with a wall thickness that ranged from between .0035 and .0045 inches [the Ersek device] is not 'thin-walled' within the meaning of the Palmaz '762 patent." (D.I. 401 at 32) However, the court, in sustaining Cordis' objection to BSC's line of questioning on that evidence, noted that BSC's argument based on the file history would have been "incorrect." (D.I. 367 at 967:18-23) The discussion of the Ersek device in the file history was focused on showing that the Ersek device has a "double thickness" and was not directed to excluding devices which have a wall thickness of more than .0035 inches. See Cordis v. AVE, 339 F.3d at 1362 (describing the discussion of the Ersek device in the file history as one which "disclaimed coverage of any device with a variation of at least 100 percent"). As

Cordis notes, the file history comments at issue have previously been the subject of improper argument with respect to the "thin-walled" limitation. For example, in the related Civ. No. 97-550-SLR case, Medtronic AVE cited that passage in support of its argument that "stents having wall thicknesses greater than .0035 inches cannot be thin." (Civ. No. 97-550-SLR, D.I. 718 at 13-15) This court rejected that attempt to place a numeric limit on "thin-walled", instead construing that limitation to mean that "[t]he wall of the tubular member must 'hav[e] little extent from one surface to its opposite at both its first and second diameters'", consistent with its construction in this case. Similarly, the Federal Circuit in Cordis v. AVE, 339 F.3d 1361-62, rejected the argument that the "substantially uniform thickness" limitation in the '762 patent is limited to variations of less than 0.001 inch. Because the purpose with which BSC sought to use the file history was incorrect, the court was correct in not allowing the file history statements to be presented to the jury, where they likely would have been "confusing and unduly prejudicial." (D.I. 367 at 967:18-23) Thus, no error took place through the court's exclusion of this evidence.

As with its motion for judgment as a matter of law of noninfringement, BSC's motion for a new trial on the issue of infringement shall be denied.

B. Cordis' Renewed Motion for Judgment as a Matter of Law, Or, in the Alternative, a New Trial on Infringement and Invalidity of the '021 Patent

1. Infringement

Cordis focuses its argument with respect to infringement on two areas. First, Cordis contends that, for various reasons, the "corners" limitation in claim 36 of the '021 patent should not have been found infringed by the BX

Velocity stent under the doctrine of equivalents. Secondly, Cordis argues that, as a matter of law, claim 36 of the '021 patent cannot cover "stents whose connected expansion strut pairs are 180 degrees out-of-phase."

With respect to the "corners" limitation of claim 36, the court construed that limitation to mean "a place where two surfaces meet to form an angle." (D.I. 334 at 5; D.I. 392 at 1834:8-11) The jury ostensibly determined that the semicircular arcs in the BX Velocity stent do not have corners under the court's claim construction and, therefore, found that they do not literally infringe claim 36. (D.I. 381) However, the jury found that the BX Velocity stent infringes the "corners" limitation of claim 36 under the doctrine of equivalents. (Id.)

Cordis argues that application of the doctrine of equivalents to the "corners" limitation vitiates that limitation and violates the "all elements rule." (D.I. 398 at 3-10) In particular, Cordis contends that the "corners" limitation is impermissibly eliminated when the doctrine of equivalents is applied because "a finding that the 'purely circular arcs' in the BX Velocity are equivalent to 'corners' would vitiate this 'clear structural limitation' because circles do not have corners." (D.I. 398 at 6) Cordis argues that BSC's application of the function/way/result theory vitiated the "corners" limitation by "treating the place where two surfaces meet as a corner, **regardless of its configuration**" and by "eliminat[ing] altogether the function of eight of the sixteen corners specified in the claim." (D.I. 398 at 7, 8) (emphasis in original) BSC introduced testimony that the rounded corners of the BX Velocity stent found at the intersection of the expansion struts and joining struts perform substantially the same function in substantially the same way to achieve substantially the same result as corners that form angles. (D.I. 388 at 1022:3-1024:4, 1056:25-1058:24) Based on the evidence offered, the differences between the rounded

corners of the BX Velocity stent and the "corners" described in claim 36 of the '021 patent appear to be minor variations like those contemplated by the Supreme Court in Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608 (1950) ("[I]f two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same, even though they differ in name, form or shape.") (internal citation omitted). The testimony of Dr. Moore also supports this conclusion in suggesting that "no substantial differences" exist between the corners of the BX Velocity stent and the corners claimed in the '021 patent. (D.I. 388 at 1023:25-1024:4) The rounded corners of the BX Velocity stent are found where its expansion struts meet its joining struts, consistent with what is detailed in the '021 patent. '021 patent, col. 7, 11. 43-45; col. 9, 11. 26-27. Similarly, some embodiments of the '021 patent use corners as reference points and have points of attachment which are offset from the corners. '021 patent, col. 12, 11. 32-44; col. 13, 11. 56-61; col. 14, 11. 10-21. Thus, the functions of each of the sixteen corners specified in claim 23 (on which claim 36 depends) are covered in the analysis offered by BSC.

Cordis argues that BSC's doctrine of equivalents analysis was flawed because it was "utterly silent on the requirement that a corner must 'form an angle.'" (D.I. 398 at 8-9) While the risk of vitiation of claims through use of the doctrine of equivalents must be recognized and avoided, it is necessary to acknowledge that any analysis of infringement under the doctrine of equivalents must deal with subject matter that does not fall within the literal scope of the claim language. See Ethicon Endo Surgery, Inc. v. U.S. Surgical Corp., 149 F.3d 1309, 1317 (Fed. Cir. 1998). Here, although the language of the '021 patent does not address "purely circular arcs," it is still possible that a product having such a structure would infringe the "corners" limitation of the '021 patent under the doctrine of equivalents. In applying the doctrine of equivalents to the "corners" limitation of claim 36

of the '021 patent, it is not proper to import a strict "angle" requirement into that limitation, since doing so would place strictures on the analysis which would cause it to instead become an evaluation of literal infringement.

Cordis further posits that the semicircular arc structure of the BX Velocity stent is outside the reach of the doctrine of equivalents because such a structure is expressly or impliedly excluded from the claims of the '021 patent. As noted by BSC, the rounded corner structure is not excluded from the '021 patent. In fact, the specification of the '021 patent states that "preferably corners 176 and 178 are rounded to remove sharp edges and provide increased flexibility" and that "rounded corners provide stent 10 with greater expandability and reduce stress in the stent strut material at the corners in the expanded stent." '021 patent, col. 12, 11. 7-11.

Cordis next contends that BSC provided insufficient evidence to support a verdict of infringement under the doctrine of equivalents. Based on the evidence mentioned above, namely the testimony of Dr. Moore, BSC provided sufficient evidence to support the verdict of infringement. Dr. Moore provided testimony that the rounded corners of the BX Velocity stent are equivalent to "corners" that form angles. (D.I. 388 at 1019:22-1021:18) Additionally, Dr. Moore offered testimony regarding the application of the doctrine of equivalents to the corners of the BX velocity stent using a "function-way-result" analysis. (D.I. 388 at 1022:3-1024:4; 1056:25-1058:24) In contrast, Dr. Buller, testifying as an expert for Cordis, did not offer an analysis under the "function-way-result" test when analyzing whether there were differences between the rounded corners of the accused device and the "corners" limitation of the '021 patent. (D.I. 390 at 1306:18-1308:10)

Cordis' final argument as to why the "corners" limitation in claim 36 of the '021 patent should not have been found infringed under the doctrine of equivalents is that it was prejudicial error to permit Dr. Moore to testify for BSC on the issue of equivalents. Cordis premises this argument on an assertion that, since Dr. Moore did not sufficiently explain his views on the doctrine of equivalents in his expert report, Fed. R. Civ. P. 26(a)(2) (B)[7] was violated. (D.I. 398 at 12-14) The particular view of Dr. Moore at issue is one which was contained in his expert report:

> The corners of the BX Velocity . . . perform substantially the same function in substantially the same way to achieve substantially the same result as the "first corners" and "second corners" of the "first expansion column" in Claim 36.

(D.I. 398, ex. 3 at 3, 5) Cordis argues that, based on such an "utterly conclusive analysis," Dr. Moore's report "failed to address the Court's claim construction" and was "so vague and sketchy" that it left Cordis with "'no idea why he thinks . . [the BX Velocity] somehow has the equivalent of [corners].'" (D.I. 389 at 47:5-10; D.I. 398 at 13-14) Cordis offered these arguments at trial in an effort to exclude the testimony of Dr. Moore on equivalents. (D.I. 389 at 45:19-47:17) The court addressed this issue when it allowed that testimony, reasoning that the discussion, charts and diagrams of that report provided a sufficient basis to include Dr. Moore's testimony in the record. (D.I. 389 at 51:18-19; 52:14-17; 53:25-54:1) While the analysis offered in the

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[7] The rule provides, in relevant part, that an expert who will testify at trial must provide a report that "shall contain a complete statement of all opinions to be expressed and the basis and reasons therefor . . . . " Fed. R. Civ. P. 26(a)(2)(B) (2005).

expert report of Dr. Moore may not have directly addressed the claim construction adopted by the court, Dr. Moore's testimony was consistent with the contents of his report and no violation of Fed. R. Civ. P. 26(a)(2)(B) was apparent. Furthermore, the court finds no evidence of prejudicial surprise due to the testimony of Dr. Moore for the following reasons: (1) Cordis deposed Dr. Moore before trial and specifically questioned him regarding his report (D.I. 407, ex. C); (2) Cordis had the opportunity to rebut Dr. Moore's testimony at trial with contrary evidence such as expert testimony in order to cure any alleged prejudice; and (3) BSC was not under an obligation to draft a supplemental expert report to address the court's claim construction, since Dr. Moore's testimony had its basis in his original report.

Cordis' second argument for noninfringement under the doctrine of equivalents is that, as a matter of law, claim 36 of the '021 patent cannot cover "stents whose connected expansion strut pairs are 180 degrees out-of-phase." As an initial matter, the court addressed this issue before trial when considering the construction of the "wherein" clause of claim 36 of the '021 patent. Cordis had sought a construction of the "wherein" clause of claim 36 that excluded 180 degree out-of-phase stent structures. (D.I. 232 at 17-36) In construing the claims,[8] the court rejected Cordis' argument on this issue, noting that "Cordis argues that claim 23, as properly construed, does not include stents that are 180 degrees out of phase . . . . [T]he court finds that there has not been a clear

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[8] The court construed the limitation "wherein the first expansion strut of the first expansion strut pair in the first expansion column has a longitudinal axis offset from a longitudinal axis of the first expansion strut of the second expansion strut pair in the second expansion column" to mean that "the first expansion strut in the first column does not share a longitudinal axis with the second expansion strut in the second column." (D.I. 334 at 6)

surrender of subject matter."[9] (D.I. 340 at 10, 13) Aside from the fact that the court construed claim 36 to cover stents which are 180 degrees out of phase, evidence was adduced at trial to suggest that the '021 patent claims such stents. For example, the specification discloses stents having expansion strut pairs that "have their open ends . . . . facing each other." '021 patent, col. 6, 11. 51-55. This disclosure appears to include 180 degree out-of-phase structures. Furthermore, Dr. Moore testified at trial that claim 36 must include 180 degree out-of-phase structures. (D.I. 388 at 1027:12-1029:9) While Cordis next argues that "corresponding expansion strut pairs" of the '021 patent must be horizontally aligned such that they are never 180 degrees out of phase (D.I. 398 at 17-18), there is no support for reading such a limitation into the claims. In addition, although Cordis asserts that claim 36 requires that "connected strut pairs are on different levels (offset from one another)," there is nothing in the patent which requires such a reading of the claim. (D.I. 398 at 19) The "wherein" clause, as discussed above, is the only limitation of claim 36 which requires an offset, and that clause was construed to permit connected expansion strut pairs which are 180 degrees out-of-phase and are not offset from one another. Overall, the evidence suggests that claim 36 of the '021 patent covers "stents whose connected expansion strut pairs are 180 degrees out-of-phase."

As shown above, based on the evidence offered at trial, the jury's verdict was supported by substantial evidence. Having reviewed the parties' post-trial briefs and the record, the court shall deny both Cordis' renewed motion for judgment as a matter of law of noninfringement and its motion for a new trial on infringement.

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[9] Claim 36 of the '021 patent depends from claim 24, which itself depends from claim 23. '021 patent, col. 19, 1. 53 - col. 21, 1. 23; col. 22, 11. 42-52.

2. Invalidity

With respect to its argument of invalidity of claim 36 of the '021 patent, Cordis first asserts that claim 36 does not deserve the benefit of the April 26, 1996 filing date of the inventor's provisional application. As a second contention for invalidity of claim 36, Cordis argues that the '021 patent was rendered invalid for obviousness as of its priority date in light of the prior art. Finally, as an alternative to its arguments regarding judgment as a matter of law of invalidity, Cordis asserts that the court should grant a new trial on obviousness.

With respect to the priority date for claim 36, the application that issued as the '021 patent was filed by its inventor on April 25, 1997. At trial, BSC sought the benefit of the April 26, 1996 filing date of a provisional application by the same inventor. (D.I. 388 at 1060:1-1061:9; 1145:20-22) Cordis argues that the particular priority date is important because "in early 1997 - between the two filing dates - other groups of researchers had created stents with curvy, bottom-to-top connectors." (D.I. 398 at 24) Cordis contends that claim 36 would only be entitled to the benefit of the earlier filing date if the provisional application provided a "written description" of claim 36 which disclosed all its limitations; Cordis argues that the provisional application failed to do this. (D.I. 398 at 25-28) Specifically, Cordis suggests that the provisional application disclosed strut pair connectors in a "top-to-top" or "bottom-to-bottom" configuration, but not the "bottom-to-top" configuration of claim 36. (D.I. 398 at 25-26) Cordis finally posits that, although the provisional application stated that "variations" from what the application actually disclosed were covered under it, this cannot be viewed as a full disclosure of all the limitations of claim 36. (D.I. 398 at 26-27 (citing Lockwood v. America Airlines, Inc., 107 F.3d 1565, 1571-72 (Fed. Cir. 1997)))

In contrast to the assertions of Cordis, BSC argues that the limitations of claim 36 were covered in the provisional application and offers testimony from Dr. Moore to that effect. (D.I. 388 at 1060:1-1061:9) In addition, BSC notes that the provisional application describes "split level" connectors and includes multiple embodiments of such connectors in the invention through words and figures, but nowhere limits the invention to a particular configuration such as "bottom-to-bottom," "top-to-top" or "bottom-to-top" connectors. (D.I. 407 at 25) As correctly noted by BSC, although the written description requirement can be satisfied by a precise description of what is claimed in the subject matter, an exact depiction of the claimed subject matter is not necessary to satisfy that requirement. See, e.g., Koito Mfg. Co. v. Turn Key Tech., LLC, 381 F.3d 1142, 1154 (Fed. Cir. 2004) ("Terms need not be used in haec verba . . . . Instead, we have explained that the written description requirement can be satisfied by 'words, structures, figures, diagrams, formulas, etc.'") (internal citations omitted). Furthermore, Lockwood v. American Airlines, Inc., cited by Cordis, notes that "the meaning of terms, phrases, or diagrams in a disclosure is to be explained or interpreted from the vantage point of one skilled in the art." 107 F.3d 1565, 1572 (Fed. Cir. 1997). Dr. Moore's testimony at trial suggested that, based on what was disclosed in the provisional application, one of ordinary skill in the art would recognize that the limitations of claim 36 were contemplated by that application. In light of his testimony, one of ordinary skill in the art could reason that the following disclosures of the provisional application cover the subject matter of claim 36: (1) "split level" or offset connecting struts; (2) illustrations of such connecting struts; (3) the specification language detailing that variations of the offset connectors in the figures of the provisional application are covered by that application. Such evidence supports the 1996 priority date for claim 36 of the '021 application. The jury was entitled to rely on such evidence in evaluating the appropriate date of priority and

finding an April 1996 priority date for claim 36 of the '021 patent.

As a second contention for invalidity of claim 36, Cordis argues that the '021 patent was rendered invalid for obviousness as of its priority date in light of the prior art. Cordis mentions the patents of Palmaz, Pinchasik, Richter, Israel and Brown as examples of stents in the prior art which had characteristics ("diagonal, offset connectors" and "curvy connectors") that would render the '021 patent obvious. (D.I. 398 at 28-29) Furthermore, Cordis suggests that combining these ideas to create "stents with curvy bottom-to-top connectors" was so obvious that engineers at Jomed and United States Surgical each created such a stent before March 1997. (D.I. 398 at 29) In light of these arguments, Cordis concludes that judgment as a matter of law of obviousness is appropriate. However, Cordis does not account for the testimony of Dr. Moore, who suggested that each of Cordis' cited prior art references were distinct from the '021 patent and would not likely be combined to make the '021 patent obvious. (D.I. 388 at 1061:10-1078:8) Furthermore, BSC cites to the testimony of Dr. Buller to suggest that both the Pinchasik and Israel patents actually teach away from a "diagonal, offset connector" and that non-offset connectors were still the "conventional wisdom" when the BX Velocity stent was being designed in 1998. (D.I. 407 at 27-28, citing D.I. 390 at 1365:22-1366:25) In light of such evidence, the jury's verdict of validity of claim 36 of the '021 patent can be sufficiently supported regardless of the particular priority date assigned to claim 36 of the '021 patent.

Cordis argues that improper arguments by counsel for BSC have made it "reasonably probable" that the verdict was influenced by prejudicial statements such that a new trial on obviousness is appropriate. (D.I. 398 at 30) Cordis contends that "the critical issue on obviousness was the priority date

for claim 36" and that "BSC's counsel misled the jury" on this issue. (D.I. 398 at 30-31) In particular, Cordis alleges that BSC's counsel misrepresented the intrinsic record when stating to the jury that "this was specifically considered by the Patent Office, the exact issue of what is the filing date of the Jang ['021] patent was considered by the Examiner." (D.I. 398 at 31, quoting D.I. 391 at 1807:3-7) Furthermore, Cordis takes issue with the assertion by BSC's counsel to the jury that the examiner's notes reflected that "it was determined that the provisional application, which is the 1996 application, relied upon has basis for the longitudinal offsetting and they award the patent in 1996 date." (D.I. 398 at 31, quoting D.I. 391 at 1807:17-19) Cordis maintains that these statements were "completely untrue" and "overstepped the bounds of zealous advocacy." (D.I. 398 at 31-32) As for the latter statement of BSC, Cordis contends that the Patent Office's consideration of priority dealt only with "offset columns" as discussed in independent claims 1 and 23, not with the "offset connectors" of claim 36. (D.I. 398 at 31-33) This contention by Cordis, although possibly correct, may be misplaced since BSC only noted that the Patent Office previously considered the "issue of what is the filing date of the Jang patent" and found that the 1996 provisional application provided a basis for "longitudinal offsetting." In other words, it does not appear that BSC asserted that claim 36 of the '021 patent was deemed to have an April 1996 priority date by virtue of the Patent Office's referenced discussion; rather, BSC's argument appears to be that the PTO's determination of a 1996 priority date of the '021 patent with respect to "longitudinal offsetting" should urge the jury to find a 1996 priority date for the '021 application with respect to the limitations of claim 36. Since Cordis had asserted that various pre-1997 references would render certain limitations of the '021 patent claims obvious, BSC was arguing that a 1996 priority date for purposes of "longitudinal offsetting" should urge such a priority date for "offset connectors." In any case, the jury was free to weigh

the credibility of and evidentiary support for this argument in its evaluation of the proper priority date for claim 36.

Cordis further argues that prejudice was present because "it had no opportunity to set the record straight [regarding the statements made by the Patent Office] because BSC's counsel raised the issue in his rebuttal summation." (D.I. 398 at 32) Despite this assertion, BSC referenced the Patent Office's statements at several earlier points during trial and Cordis did not then object to BSC's arguments. As BSC has noted, it discussed the Patent Office's statements during: (1) Dr. Moore's direct testimony (D.I. 388 at 1061:5-9); (2) Dr. Moore's cross-examination (D.I. 388 at 1152:8-15); (3) Dr. Moore's redirect testimony (D.I. 388 at 1163:5-15); (4) BSC's opening summation (D.I. 391 at 1686:13-22); and (5) BSC's rebuttal summation (D.I. 391 at 1807:4-14). (D.I. 407 at 33) In addition, Cordis had and took the opportunity to provide its own argument on this issue throughout trial, arguing that the '021 patent was not entitled to an April 1996 priority date due to its prosecution history. (D.I. 388 at 1061:5-9, 1152:6-15; D.I. 391 at 1686:13-22, 1753:2-10) In other words, if Cordis had viewed the comments by BSC's counsel as creating a risk of prejudice against its case on obviousness, it took several steps to minimize such a risk and had the opportunity to take several more. Cordis may not now allege prejudice after trial when it did not dispute the propriety of BSC's arguments at trial. See, e.g., U.S. v. Socony-Vacuum Oil Co., 310 U.S. 150, 238-39 (1940) ("[C]ounsel for the defense cannot as a rule remain silent, interpose no objections, and after a verdict has been returned seize for the first time on the point that the comments to the jury were improper and prejudicial."); see also Murray v. Fairbanks Morse, 610 F.2d 149, 152 (3d Cir. 1979) ("Counsel's failure to object precludes him from seeking a new trial on the grounds of the impropriety of opposing counsel's closing remarks").

Even if the comments by BSC's counsel as to the correct priority date did create a risk of prejudice against Cordis, this risk was further minimized for various reasons. First, the specific priority date of claim 36 of the '021 patent may have had a limited effect, if any, on the nonobviousness verdict. As noted above, evidence was present to suggest that the elements of the prior art references cited by Cordis were distinct from the limitations of claim 36 such that claim 36 was not rendered obvious. Secondly, the court specifically instructed the jury that attorney arguments should not be considered as evidence and that the jury was to weigh the evidentiary support for any arguments which it considered in rendering its verdict. (D.I. 384 at 101:7-8, 105:21-22; D.I. 392 at 1822:15-17) Even if counsel for BSC had misrepresented the conclusions of the Patent Office with respect to the appropriate priority date for claim 36 of the '021 patent, such a misrepresentation would not have been corroborated by the evidence and alone would not have been eligible for consideration as evidence by the jury in its invalidity analysis, per the court's instructions. Thus, even if the priority date of claim 36 were a deciding factor in the jury's determination of nonobviousness, it is unlikely that prejudice would have influenced that verdict.

Cordis offers a second basis for a new trial on obviousness. Cordis argues that "[b]ecause BSC itself has never practiced the Jang [1021] patent, it relied on 'the commercial success of the [allegedly] infringing stents,' i.e., the BX Velocity, D.I. 388 at Tr. 1079:18-1080:5, as a secondary consideration of nonobviousness." (D.I. 398 at 33) Cordis alleges that BSC's nonobviousness argument necessarily depended on the assumption that the BX Velocity stent infringes claim 36. (Id.) Therefore, Cordis argues that a new trial would be needed if the infringement verdict does not stand. (D.I. 398 at 34) Cordis concludes that a decision granting judgment as a matter of law of no infringement would mean that the BX Velocity stent does not practice

claim 36 and that its commercial success could not count as a secondary consideration for nonobviousness. (Id.) Furthermore, Cordis argues that the grant of a new trial on infringement would leave open the issue of whether the BX Velocity stent practices claim 36 for determination at a new trial. (Id.) Regardless of whether the jury's verdict of nonobviousness depended on its conclusion with respect to infringement, the court shall grant neither a new trial on the issue of infringement nor judgment as a matter of law of no infringement. Therefore, no new trial on obviousness shall be granted.

3. Prejudice

As a distinct argument for judgment as a matter of law (or, in the alternative, a new trial) on all issues, Cordis argues that "inflammatory and improper" arguments by BSC's counsel were delivered to the jury. (D.I. 398 at 34-40) Cordis alleges that BSC accused Cordis of copying even though BSC had no evidence to support such an accusation, had not alleged copying before trial, and had promised to refrain from making arguments related to copying during trial. (Id.) Specifically, Cordis contends that the following argument in the closing statements of BSC's counsel was "baseless and inflammatory":

> From 1995 to the year 2000, they fell out of the market. The Crown failed. The MiniCrown failed. The CrossFlex failed. Couldn't get it to work. They could not make it work with all their resources. They met with Dr. Jang in the year 2000, for the first time, they launched a product with a curvy offset connector called the BX Velocity. They immediately got 30 percent of the market and it was due to the flexibility. They took Dr.

> Jang's invention and it's not right. Don't let them get away with it.

(D.I. 391 at 1702:18-1703:2) After hearing this argument, the court stated that it was "a little uncomfortable with the very last argument" because "there's no evidence of copying. It just leaves the wrong impression." (D.I. 391 at 1703:10-12) Furthermore, the court noted that "copying is not alleged in this case . . . . I've been chastising you for it since the beginning." (D.I. 391 at 1704:21-23; 1705:3-5) Although counsel for BSC maintained that this argument was focused on proving a "secondary consideration" (D.I. 391 at 1706:4-5) for purposes of proving "nonobviousness" (D.I. 391 at 1706:22-23), the court disagreed and maintained that the argument constituted an allegation of copying (D.I. 391 at 1717:1-13). Cordis argues that this argument "introduc[ed] extraneous matter which ha[d] a reasonable probability of influencing the verdict." (D.I. 398 at 38, quoting Ayoub v. Spencer, 550 F.2d 164, 170 (3d Cir. 1977)) Therefore, Cordis urges a new trial on infringement and invalidity of the '021 patent.

Despite these arguments by Cordis, the comments by counsel for BSC regarding copying do not warrant a new trial. First, after the court expressed concern about the inference of copying which was apparent in the closing arguments of BSC's counsel, Cordis requested a curative instruction. In particular, Cordis requested that the jury be instructed that "you've heard argument that Dr. Jang met with representatives of Cordis. You should understand that there is no charge of copying, there's no charge in this case that Cordis copied Jang's design." (D.I. 391 at 1710:3-7) The court offered Cordis the opportunity to either address the issue in its closing argument or have the court deliver its proposed instruction with respect to copying. (D.I. 391 at 1720:7-18) Cordis decided not to have the court deliver its proposed instruction and instead addressed the issue in its

closing argument. (D.I. 391 at 1720:19; 1732:6-1734:14) In its motion for a new trial, Cordis reasons that it refused to have the court deliver its proposed instruction because it would "ma[ke] matters worse." (D.I. 398 at 39) If Cordis believed that a curative instruction would have been insufficient, it should have moved for a mistrial. See Dougal v. Williams, 294 F. Supp. 1357, 1358 (E.D. Pa. 1968), aff'd, 405 F.2d 867 (3d Cir. 1969) (finding that it was "too late now for this complaint" regarding plaintiff's counsel's misconduct when there was "ample opportunity" for defense counsel to have moved for a mistrial). Instead, Cordis did not move for a mistrial but discussed the issue of copying in its closing argument. Instead of allowing the court to either instruct the jury as to the issue of copying or consider a motion for a mistrial, Cordis made an attempt at trial to cure what it alleged was prejudice; Cordis is not entitled to a new trial merely because it now believes its attempt was unsuccessful.

Even if there were a risk of prejudice due to the statements by BSC's counsel regarding copying, such risk of prejudice was minimized by the court. First, the court repeatedly instructed the jury that counsel's arguments are not evidence. (D.I. 384 at 101:7-8, 105:21-22; D.I. 392 at 1822:15-17) Secondly, the court did not instruct the jury as to copying, which prevented the jurors from considering copying in evaluating the issues. As even Cordis admits, such a measure prevented the court from "put[ting] that word [copying] in the jurors' mind." (D.I. 398 at 38-39, quoting D.I. 391 at 1715:19-20) Furthermore, the court instructed the jury to consider evidence of "independent development" as tending to show obviousness or nonobviousness.[10] The

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[10] In informing the jury of the appropriate considerations it should weigh in evaluating the validity of claim 36 of the '021 patent, the court stated:

> Another objective factor you must consider in determining whether Claim 36 of the Jang '021 patent

statements by BSC's counsel regarding Dr. Jang's meetings with Cordis presented evidence on the issue of whether Cordis independently developed the EX Velocity stent. With no instruction on copying, the jury was entitled to consider this evidence in evaluating the issue of obviousness of claim 36 of the '021 patent. In light of these instructions by the court, it was unlikely that the statements of BSC's counsel with respect to copying had improperly influenced the verdict.

C. BSC's Motion for Reconsideration of the Without Prejudice Aspect of the Court's Order Dismissing Cordis' Infringement Claims Against the Taxus Liberté Stent

BSC's motion for reconsideration stems from the court's "without prejudice" grant of judgment as a matter of law of noninfringement with respect to the Taxus Liberté stent. After the close of Cordis' evidence at trial, BSC had moved for judgment as a matter of law of noninfringement with respect to the Taxus Liberté stent because it alleged that Cordis had failed to offer evidence to support any theory of infringement under 35 U.S.C. § 271. (D.I. 367 at 1027:17-1028:1; 1030:25-1031:5) In opposing that motion, Cordis alleged that it had evidence of U.S. activity with respect to the Taxus Liberté stent that would prove infringement under

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> is obvious or nonobvious is that of simultaneous invention. The independent development or making of an invention by others before, or at about the same time as, the invention disclosed in the patent in suit, may tend to show the obviousness or nonobviousness of the invention of the patent in suit.

(D.I. 392 at 1848:7-14)

35 U.S.C. § 271(f)[11]; Cordis admitted that it deliberately chose not to introduce this evidence at trial since it believed its § 271(f) argument was no longer applicable when its infringement case narrowed from coating claims to only structure claims. (D.I. 368 at 1054:13-22; 1056:10-1057:25; 1058:21-25) Cordis argues that it did not offer separate proof about the jurisdictional nexus of the Taxus Liberté stent in addition to that offered for the bare metal Liberté stent because it considered the Taxus Liberté stent to be only a different model of the Liberté stent with the same structure and a Taxus coating added. (D.I. 365 at 414; D.I. 395 at 2-3) The court disagreed and considered the Taxus Liberté stent to

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[11] 35 U.S.C. § 271 (f) provides that:

> (1) Whoever without authority supplies or causes to be supplied in or from the United Stated all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.
>
> (2) Whoever without authority supplies or causes to be supplied in or from the United States any component of a patented that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial noninfringing use, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.

35 U.S.C. § 271(f) (2005).

be a different product than the Liberté bare metal stent. (D.I. 368 at 1051:17-18) The court granted BSC's motion, but did so without prejudice, reasoning that it lacked jurisdiction over the Taxus Liberté stent. (D.I. 368 at 1307:12-16; 1307:20; 1307:25-1308:2)

As the basis for its motion for reconsideration, BSC argues that the court committed an error of law in "concluding that it did not have jurisdiction to enter JMOL of noninfringement regarding the Taxus Liberté stent, with prejudice." (D.I. 383 at 2) BSC contends that the court "had and has jurisdiction over Cordis' patent infringement claims against the Taxus Liberté stent pursuant to 28 U.S. §§ 1331, 1338(a) and 35 U.S.C. § 271(f). Cordis' failure of proof at trial did not deprive the Court of jurisdiction over Cordis' infringement claim against the Taxus Liberté stent." (D.I. 383 at 6) BSC continues by arguing that Cordis' failure of proof cannot be cured and that judgment as a matter of law for a failure of proof should be made with prejudice. (D.I. 383 at 8-11)

Although the arguments offered by BSC are applicable to a grant of judgment as a matter of law for failure of proof, such was not the basis for the grant of judgment as a matter of law by the court. As explained by the court, "Having researched and thought about it, I do not believe I have jurisdiction over the Taxus Liberté product and, therefore, BSC's JMOL will be granted and the instructions will refer only to the Liberté stent." (D.I. 368 at 1307:12-16) In specifying the nature of its grant of judgment as a matter of law, the court noted that it was "[certainly without prejudice." (D.I. 368 at 1307:20) When subsequently questioned on this point, the court reiterated its decision in stating, "It is without prejudice. I said I didn't have jurisdiction. I didn't say it was on a procedural basis." (D.I. 368 at 1307:25-1308:2) While BSC focuses its present motion on whether Cordis failed to prove that the Taxus

Liberté stent infringed under 35 U.S.C. § 271(f), that issue was not a deciding factor in the court's grant of judgment as a matter of law of noninfringement without prejudice. As the Federal Circuit has noted, a product that is "not made in, used in, sold in, offered for sale in, or imported into the United States" is "outside of the reach of U.S. patent laws." Pellegrini v. Analog Devices, Inc., 375 F.3d 1113, 1118 (Fed. Cir. 2004). With no nexus to the United States, the court had no jurisdiction to grant judgment as a matter of law with respect to the Taxus Liberté stent. As stated in Rule 41(b) of the Federal Rules of Civil Procedure, an involuntary dismissal "under this subdivision and any dismissal not provided for in this rule, **other than a dismissal for lack of jurisdiction,** . . . operates as an adjudication upon the merits." Fed. R. Civ. P. 41(b) (emphasis added). Since a dismissal due to lack of jurisdiction in not an adjudication upon the merits, it must be without prejudice. See, e.g., Figueroa v. Buccaneer Hotel Inc., 188 F.3d 172, 182 (3d Cir. 1999) (explaining that dismissal for lack of jurisdiction is not a determination on the merits and is without prejudice). As a result, no error of law was committed when the court concluded that it did not have jurisdiction to enter judgment as a matter of law of noninfringement regarding the Taxus Liberté stent with prejudice. BSC's motion for reconsideration, therefore, shall be denied.

V. CONCLUSION

For the reasons stated, BSC's renewed motion for judgment as a matter of law of noninfringement and invalidity is denied and Cordis' renewed motion for judgment as a matter of law or, in the alternative, a new trial on infringement and invalidity of the '021 patent is denied. BSC's motion for reconsideration of the without prejudice aspect of the court's order dismissing Cordis' infringement claims against the Taxus Liberté stent is denied. An order consistent with this memorandum opinion shall issue.

United States District Judge

APPENDIX E

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

2008-1003, -1072

CORDIS CORPORATION,

Plaintiff-Appellant,

v.

BOSTON SCIENTIFIC CORPORATION and SCIMED LIFE SYSTEMS, INC.,

Defendants-Cross Appellants.

Appeals from the United States District Court for the District of Delaware in case no. 03-CV-027, Judge Sue L. Robinson.

ORDER

NOTE: This order is nonprecedential.

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

ORDER

A combined petition for panel rehearing and for rehearing en banc having been filed by the Appellant, and a response thereto having been invited by the court and filed by the Cross-Appellants, and the petition for rehearing and response, having been referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc and response having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for panel rehearing be, and the same hereby is, DENIED and it is further

ORDERED that the petition for rehearing en banc be, and the same hereby is, DENIED.

The mandate of the court will issue on July 6, 2009.

FOR THE COURT,

/s/

Jan Horbaly
Clerk

Dated: 06/26/2009

cc: Eugene M. Gelernter
Peter J. Armenio

CORDIS CORP V BOSTON
SCIENTIFIC, 2008-1001-1072
(DCT - 03-CV-27)

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(2)

Supreme Court, U.S.
FILED
OCT 29 2009
OFFICE OF THE CLERK

No. 09-365

IN THE
Supreme Court of the United States

CORDIS CORPORATION,

Petitioner,

v.

BOSTON SCIENTIFIC CORPORATION
and BOSTON SCIENTIFIC SCIMED, INC.,

Respondents.

ON PETITION FOR WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

BRIEF IN OPPOSITION

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QUESTION PRESENTED

The petition for certiorari presented the following question:

1. Was it proper for the district court to enter judgment based on a verdict of patent infringement under the doctrine of equivalents where it is undisputed that the accused product contained, if not literally every patent element, at a minimum a known interchangeable substitute for the one allegedly absent element, and where neither party objected to the question of infringement by equivalence being submitted to the jury?

CORPORATE DISCLOSURE STATEMENT

Pursuant to this Court's Rule 29.6, respondents Boston Scientific Corporation and Boston Scientific Scimed Inc. (formerly known as Scimed Life Systems, Inc.) state that Boston Scientific Corporation is a publicly held company and a parent corporation that owns 10 percent or more of the stock of Boston Scientific Scimed, Inc., and that no parent corporation or publicly held company owns 10 percent or more of Boston Scientific Corporation.

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INTRODUCTION

Cordis' Petition concerns a narrow issue of interest only to the parties to this case—whether the "rounded corners" in Cordis' stents were properly deemed equivalent to the "corners" recited in Boston Scientific's patent.

Cordis' Petition shows that there is no genuine dispute as to the equivalence found by the jury—the two structures are known to be "interchangeable substitutes." As Cordis does not dispute, substantial evidence was adduced at trial that Cordis' "rounded corners" performed substantially the same function in substantially the same way to achieve substantially the same result as the patent's "corners"—a test this Court has repeatedly endorsed as one way to assess and apply the doctrine of equivalents.

Notably, any difference between "corners" and "rounded corners" is inapposite to the invention in Boston Scientific's patent. As discussed herein, the patent's use of offset, curvy connectors distinguished it over the prior art and achieved a combination of strength and flexibility that others had tried—and failed—to achieve for many years. For example, Cordis was only able to reverse a string of disappointing products after meeting with the inventor of Boston Scientific's patent, learning of his designs, and then launching the accused products. The doctrine of equivalents exists for just such cases—to prevent alleged infringers from escaping liability for patent infringement by making an insubstantial alteration.

Cordis argues that—notwithstanding this factual record—it was somehow improper as a matter of law

for the jury to consider infringement under the doctrine of equivalents. This new argument was not timely raised in the district court and was waived. Cordis did not move for summary judgment regarding the doctrine of equivalents. Cordis did not move in limine to exclude evidence and argument regarding equivalents for the "corners" limitation. Cordis did not object to the question of infringement by equivalents being submitted to the jury. And Cordis did not object to the instruction used to charge the jury. Cordis' failure to object constitutes waiver and is fatal to Cordis' Petition *ab initio*.

If considered on the merits, Cordis' Petition is still properly denied. Cordis argues that the doctrine of equivalents should somehow be barred in this case because the structures were known to be equivalent at the time of patenting. This argument is without merit. For over 100 years, this Court has repeatedly held that the doctrine of equivalents applies in such circumstances.

Cordis argues that this Court's 2002 decision in *Festo* somehow implicitly abrogated this century of precedent. But *Festo* addressed the scope of prosecution history estoppel, and is inapposite here where no such estoppel is claimed. Indeed, the relevant claim of Boston Scientific's patent was allowed without any rejection. There was no rejection and no amendment to Boston Scientific's patent regarding the "corners" limitation, and thus no possible surrender of patent scope. *Festo* is inapposite.

Cordis' argument that the holding of *Festo* somehow extends beyond prosecution history estoppel finds no basis in the text of *Festo* nor in any

subsequent case or commentary. There is no confusion among the courts. Nor are there any conflicting decisions. In fact, the only known case that has addressed the question raised by Cordis' Petition rejected Cordis' argument.

Cordis' Petition seeks to reverse over 100 years of this Court's jurisprudence on the doctrine of equivalents. Cordis argues that this reversal is somehow necessary to prevent uncertainty for potential infringers. But the doctrine's balance between patentees' rights and potential infringers' certainty was set by the Court at the inception of the doctrine of equivalents 150 years ago. And it has been reaffirmed in every subsequent decision. The purpose of the doctrine of equivalents is to extend patents beyond their strict, literal scope. Were the rule otherwise, infringers could escape liability for patent infringement by making a single, insubstantial alteration.

This case presents facts squarely within the 150 years of this Court's precedent: Cordis met with Dr. Jang, learned of his stent designs and then launched a new product that differed from Dr. Jang's patent only by an insubstantial modification to one limitation. These facts offer no reason to change the balance this Court has long maintained. Indeed, this Court has repeatedly, and explicitly, deferred to Congress for any fundamental modifications of the doctrine of equivalents, such as that requested by Cordis. Cordis offers no basis for the Court to revisit that conclusion. Cordis' Petition is properly denied.

COUNTERSTATEMENT OF THE CASE

I. Background

Respondent Boston Scientific is a world-wide leader in the design and development of stents for the treatment of coronary artery disease. Coronary artery disease can result from a build-up of plaque in a patient's blood vessels, constricting the blood flow reaching the heart's muscle tissue. This can lead to chest pain, shortness of breath and—in extreme presentations—heart attack and even death.

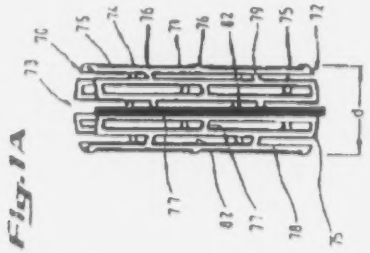
Balloon angioplasty has been used for decades to treat coronary artery disease. A catheter is inserted into a relatively non-invasive entry site—such as the femoral artery in the leg—and threaded through the patient's vasculature to the site of blockage. A balloon on the catheter is then inflated, compressing the plaque against the vessel wall to reopen the blood vessel. The balloon catheter is then deflated and removed. This offers a faster and much less invasive option than coronary artery bypass surgery, one of the few alternative treatments previously available.

Stents are metal scaffolds delivered in conjunction with balloon angioplasty. When the balloon expands, the scaffold also expands to provide a mechanical support inside the blood vessel. This prevents blood vessels from elastically re-narrowing once the balloon is removed, and also prevents loosened plaque from blocking blood flow.

A. Prior to Dr. Jang's invention, there was a long-felt need for stents that were both flexible and strong.

By the mid-1990's, many companies were trying to develop stents that were both flexible enough to be delivered through a patient's tortuous vasculature, yet strong enough to hold open a diseased artery once deployed. Although the need for achieving both of these properties in a single device was known, the stent industry was unable to achieve this combination for years, if not decades.

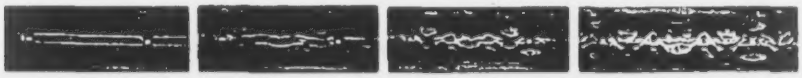
Cordis was one of the companies trying to achieve this combination of strength and flexibility. Cordis' stents of this era were based on the Palmaz patents, discussed in Cordis' Petition as well as in Boston Scientific's Petition For Writ Of Certiorari in Case No. 09-362. Cordis' Palmaz stents were designed as metal tubes with longitudinal slots, leading to straight struts of metal that ran the length of the stent, as highlighted below:



While Cordis' Palmaz stents provided a high degree of radial strength, inclusion of such long, straight struts made these stents too rigid. They failed to achieve the necessary flexibility for delivery of the stent and for patient safety.

Cordis tried for years to improve the flexibility of its stents without sacrificing strength. In the early

1990's, Cordis contracted with Deka, an engineering consulting firm. Deka's attempts to improve the Palmaz stent resulted in the Crown stent, which replaced the straight metal struts of the Palmaz stent with wavy struts. This substitution is shown below in images from a video Cordis offered to the FDA in seeking regulatory approval of the Crown stent:

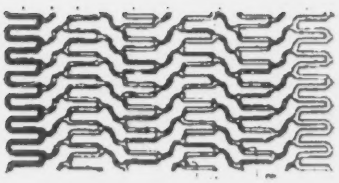


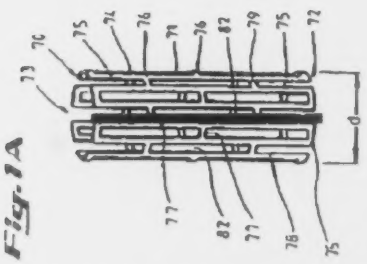
Cordis' efforts with the Crown stent failed to improve flexibility to a satisfactory degree. This was also true of Cordis' follow-on product, the Mini-Crown stent.

In the mid-1990's Cordis turned to another engineering company, Isostent. Isostent's work with Cordis led to the BX stent. But the BX stent was also unable to achieve the desired combination of strength and flexibility. Thus, Cordis continued to meet with other stent designers.

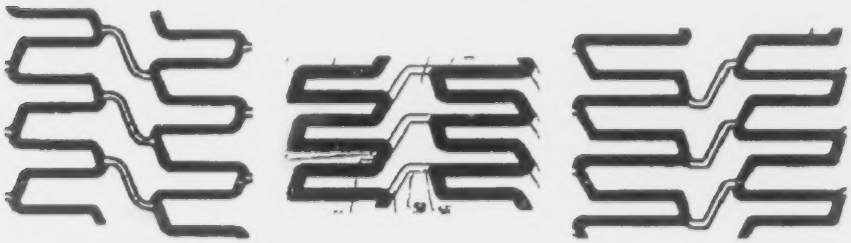
B. Dr. Jang's invention achieved both flexibility and strength through the use of offset, curvy connectors.

Dr. G. David Jang began his work on stent designs in the early 1990's. To achieve the desired combination of strength and flexibility, Dr. Jang went against the conventional wisdom. First, Dr. Jang chose to use discrete "expansion columns," which were comprised of metal struts extending along only a portion of the stent's longitudinal axis (highlighted below in blue), rather than the metal struts of Cordis' Palmaz, Crown and Mini-Crown stents, which ran the length of the device (highlighted in red):





By spacing discrete expansion columns along the length of the stent, Dr. Jang avoided the rigidity of Cordis' designs. Second, Dr. Jang connected these expansion columns with offset, curvy connectors. This increased the length of the connectors' lever arm, and as a result their flexibility, as well as allowing torquing between expansion columns for additional flexibility. At the same time, Dr. Jang retained a dense network of these connectors, preserving the stent's strength and scaffolding. These features are illustrated below, in various figures from the Jang '021 patent, with the expansion columns highlighted in blue and the offset, curvy connectors highlighted in yellow:



As Cordis' technical expert conceded at trial, the prior art feared that this "offset connector is completely the wrong thing to do" and the prior art was "concerned about twisting and they were avoiding a diagonal connector." As summarized by the Federal Circuit, the "prior art patents taught away from the bottom-to-top connectors described in

claim 36 by describing features of such connectors as potentially harmful." Pet. App. 20a. This was the critical feature that distinguished Dr. Jang's invention, and it allowed him to succeed where the prior art had failed.

The reference points for some of Dr. Jang's offset, curvy connectors were the "corners" of the expansion column. This was the location where the horizontal portions of the expansion column—or "expansion struts" in the parlance of the patent—were joined to the vertical portions—or "joining struts." It distinguished the apex of the joining struts, where some prior art had attached connectors. But the specific shape of the "corner" was inapposite to the novel offset, curvy connection scheme.

Although the district court construed the term "corner" as used in the claims of the Jang '021 patent to mean "a place where two surfaces meet *to form an angle*," the court noted that the Jang patent also embraced the use of rounded corners, or "semi-circular arcs" in Cordis' parlance:

> As noted by BSC, the rounded corner structure is not excluded from the '021 patent. In fact, the specification of the '021 patent states that "preferably corners 176 and 178 are rounded to remove sharp edges and provide increased flexibility" and that "rounded corners provide stent 10 with greater expandability and reduce stress in the stent strut material at the corners in the expanded stent."

Pet. App. 80a (citation omitted). Nowhere in the patent or the prosecution history—or anywhere else in the record—did Dr. Jang disclaim rounded

corners. Nor would such a distinction have been relevant to Dr. Jang's invention, which is characterized by offset, curvy connectors.

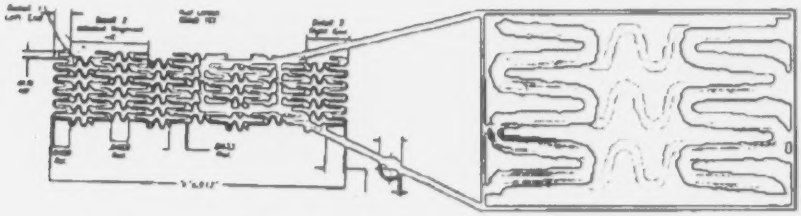
C. After meeting with Dr. Jang, Cordis launched Bx Velocity—a stent with offset, curvy connectors.

Following its experience with the Palmaz, Crown, Mini-Crown and BX stents, Cordis met with Dr. Jang. Cordis received a portfolio of Dr. Jang's designs, as well as documents explaining the disclosed features. As explained at trial by the Cordis executive tasked with stent research and development in the 1990's:

> Q: When is the first time you ever met Dr. Jang personally?
>
> A: I don't remember the precise date. Somewhere in the '95 to '97 time frame.
>
> * * *
>
> Q: Are you aware of [sic] that someone on behalf of Johnson & Johnson Cordis was negotiating with Dr. Jang in 1995 to '98 time frame?
>
> A: Yeah. Again, I'm not sure I would characterize it as negotiations. There were conversations that went back and forth with multiple letters to Dr. Jang with different iterations of his ideas of stents.
>
> Q: Did Cordis ever consider licensing any of those designs that Dr. Jang was discussing?
>
> A: Well, again, based on what I looked at yesterday, there was this ongoing dialogue.

> Whether this actually got to the point of considering a license or not is not clear to me.
>
> * * *
>
> Q: Is it your understanding that at some point in the discussions that were going on between Dr. Jang and Cordis and J&J, that Dr. Jang made an offer of his stent technology to Cordis J&J?
>
> A: Well, based on the [sic] reading the communication yesterday, it seems, yes, he made multiple offers of what he characterized as the best stent in the world.

However, Cordis did not license Dr. Jang's technology. Instead, it proceeded to launch a stent—the Bx Velocity shown below with offset, curvy connectors—without any authorization from Dr. Jang:



Although Cordis attempts to argue that the Bx Velocity contains "semi-circular arcs" at its ends, the district court determined that those are simply the "rounded corners" of Dr. Jang's patent:

> The rounded corners of the Bx Velocity stent are found where its expansion struts meet its joining struts, consistent with what is detailed in the '021 patent.

Pet. App. 79a. This same stent design with offset, curvy connectors was used in Cordis' Cypher, Bx Sonic and Genesis stents, versions of the Bx Velocity used for drug-elution, a different delivery catheter and peripheral arteries, respectively.[1] Using this design, Cordis' stents have achieved considerable commercial success.

II. Prior Proceedings

A. The "rounded corners" of Bx Velocity were found equivalent to the patented "corners" by the jury and district court.

Cordis filed a complaint against Boston Scientific on January 13, 2003 claiming, *inter alia*, alleged infringement of the Palmaz '762 patent.[2] On March 5, 2003, Boston Scientific filed a counterclaim for Cordis' infringement of the Jang '021 patent.

Boston Scientific's counterclaim was tried to a jury in June 2005. Cordis did not move for summary judgment with respect to infringement of the "corners" limitation, nor did it move in limine to exclude evidence or argument of infringement under the doctrine of equivalents. As summarized by the district court, Boston Scientific adduced evidence at trial that Cordis' "rounded corners" infringed the

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[1] Because there are no relevant differences between these four stents for purposes of infringement, they are collectively referred to herein as "Bx Velocity."

[2] The invalidity of the Palmaz '762 patent is the subject of Boston Scientific's Petition for Writ of Certiorari in Case No. 09-362.

claimed "corners" of the Jang '021 patent under the doctrine of equivalents:

> Dr. Moore provided testimony that the rounded corners of the Bx Velocity stent are equivalent to the "corners" that form angles. Additionally, Dr. Moore offered testimony regarding the application of the doctrine of equivalents to the corners of the Bx [V]elocity stent using a "function-way-result" analysis. In contrast, Dr. Buller, testifying as an expert for Cordis, did not offer an analysis under the "function-way-result" test . . . .

Pet. App. at 80a (citations omitted). Following this presentation of evidence, the district court charged the jury with, *inter alia*, the following instruction:

> If you find that the accused stents literally infringe all of the limitations of Claim 36 of the '021 patent except for the corners limitation, then you must consider whether the accused stents infringe that limitation under the doctrine of equivalents.
>
> * * *
>
> The test for determining equivalence under the doctrine of equivalents is whether the differences between the claim limitation which you have found not to be literally present and the element present in the accused products are insubstantial. In determining whether the differences are substantial or insubstantial, you may consider whether or not the claimed limitation and the element in the accused products perform substantially the same

> function in substantially the same way to produce substantially the same result.
>
> * * *
>
> [I]f you find that a claim limitation is not literally infringe[d], you must compare that claim to the corresponding element in the accused product to determine equivalents.

Cordis did not object to this instruction. Nor did Cordis object to the verdict form, which explicitly required the jury to consider the doctrine of equivalents for the "corners" limitation:

> 4. Has Boston Scientific shown by a preponderance of the evidence that the Cypher, Bx Velocity, Bx Sonic and Genesis stents infringe the "corners" limitation of claim 36 of the '021 patent under the doctrine of equivalents?
>
> | YES (A finding for Boston Scientific) | NO (A finding for Cordis) |
> |---|---|
> | ✓ | |

Following a verdict of infringement, the district court rejected Cordis' renewed motion for judgment as a matter of law challenging the sufficiency of the evidence presented at trial:

> With respect to the "corners" limitation of claim 36, the court construed that limitation to mean "a place where two surfaces meet to form an angle." . . . BSC introduced testimony that the rounded corners of the Bx Velocity stent found at the intersection of the expansion struts and joining struts perform substantially the same function in

> substantially the same way to achieve substantially the same result as corners that form angles. Based on the evidence offered, the differences between the rounded corners of the Bx Velocity stent and the "corners" described in claim 36 of the '021 patent appear to be minor variations like those contemplated by the Supreme Court in *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950) . . . .

Pet. App. 78-79a.

Cordis argued for the first time after the trial that legal bars such as the all-elements rule and the doctrines of vitiation and exclusion should have somehow barred the jury's consideration of infringement under the doctrine of equivalents. Pet. App. 78-80a. The district court rejected these arguments. *Id.*

B. The Federal Circuit affirmed the judgment of infringement under the doctrine of equivalents.

On September 24, 2007, Cordis appealed, *inter alia*, the judgment of infringement under the doctrine of equivalents. As the Federal Circuit concluded:

> The district court properly found that Boston Scientific presented sufficient expert testimony that Cordis's Bx Velocity stent meets the "corners" limitation of claim 36 under the doctrine of equivalents under the function-way-result test of *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*, 339 U.S. 605, 608 (1950), a test that is still

> useful under *Warner-Jenkinson Co. v. Hilton-Davis Chemical Co.*, 520 U.S. 17, 39-40 (1997), particularly for mechanical inventions. Boston Scientific's expert Dr. Moore testified that the "corners" in claim 36 and the circular arcs or rounded corners of the Bx Velocity stent both function as actual and potential reference points for joining adjacent stent rings, fulfill this function through their similar locations, and can or do result in offset connections between rings.

Pet. App. 15-16a.

The Federal Circuit further found that: "The district court properly found that vitiation did not bar a doctrine of equivalents analysis here" and that rounded corners or circular arcs were not excluded or disclaimed in the prosecution history of the '021 patent. Pet. App. 16a & n.6. Accordingly, the Federal Circuit affirmed the judgment of infringement.

ARGUMENT

I. Infringement under the doctrine of equivalents was proper in this case.

A. For over 150 years, the doctrine of equivalents has been a fundamental part of United States patent law.

The doctrine of equivalents dates back to this Court's 1853 decision in *Winans v. Denmead*. *See Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950) (crediting *Winans* as the origin of the doctrine). In that case, the plaintiff's patent claimed a conical car for the transportation of coal—*i.e.*, a car with a circular cross-section—whereas the

defendant's product comprised a car with an octagonal cross-section. *Winans v. Denmead*, 56 U.S. 330, 330-31 (1853). This slight difference in shape was the basis for a directed verdict of non-infringement by the district court. *Id.* at 336.

The Court reversed the judgment, finding that "the property of inventors would be valueless, if it were enough for the defendant to say, your improvement consisted in a change of form; you describe and claim but one form; I have not taken that, and so have not infringed." *Winans*, 56 U.S. at 342-43. If such trivial substitutions were sufficient to escape liability for patent infringement, the value of a patent grant—and the policy underlying the patent system—would be greatly diminished.

This principle was reaffirmed by this Court a few years later in *Seymour v. Osborne*:

> Mere formal alterations in a combination in letters patent, however, are no defence to the charge of infringement, and the withdrawal of one ingredient from the same and the *substitution of another which was well known at the date of the patent as a proper substitute for the one withdrawn*, is a mere formal alteration of the combination if the ingredient substituted performs substantially the same function as the one withdrawn.

78 U.S. 516, 556 (1870) (emphasis added). As the Court concluded: "Patentees, therefore, are entitled in all cases to invoke to some extent the doctrine of equivalents . . . ." *Id.*

This approach continued as the Court revisited the doctrine over the ensuing decades: "A close copy

which seeks to use the substance of the invention, and, although showing some change in form and position, uses substantially the same devices, performing precisely the same offices with no change in principle, constitutes an infringement." *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929).

The doctrine of equivalents became a crucial part of patent protection, as repeatedly expressed by this Court's decisions:

> [C]ourts have also recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for—indeed encourage—the unscrupulous copyist to make unimportant and insubstantial changes and substitutions. . . . One who seeks to pirate an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy.

Graver Tank, 339 U.S. at 607. This importance was echoed most recently by the Court in *Festo*:

> If patents were always interpreted by their literal terms, their value would be greatly diminished. Unimportant and insubstantial substitutes for certain elements could defeat the patent, and its value to inventors could be destroyed by simple acts of copying. . . . The scope of a patent is not limited to its literal terms but instead embraces all equivalents to the claims described.

Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 731-32 (2002).

B. The doctrine of equivalents prevents infringers from substituting known equivalents to escape liability.

Although "[e]quivalence, in the patent law, is not the prisoner of a formula," *Graver Tank*, 339 U.S. at 609, certain standards have emerged over time for application of the doctrine. In the doctrine's first formulation, this Court mandated a factual inquiry into whether the accused product was similar enough:

> [A]s substantially to embody the patentee's mode of operation, and thereby attain the same kind of result as was reached by his invention. . . . It must be the same in kind, and effected by employment of his mode of operation in substance. Whether, in point of fact, the defendant's cars did copy the plaintiff's invention, in the sense above explained, is a question for the jury, and the court below erred in not leaving that question to them upon the evidence in the case, which tended to prove the affirmative.

Winans, 56 U.S. at 344. The applicable test was refined a few years later in *Union Paper-Bag Machine Co. v. Murphy*:

> [I]n determining the question of infringement, the court or jury, as the case may be, are not to judge about similarities or differences by the name of things, but are to look . . . *if it performs substantially the same function in substantially the same way to*

> *obtain the same result.* . . . [I]f two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same, even though they differ in name, form, or shape.

97 U.S. 120, 125 (1877) (emphasis added). This "function-way-result" test was cited favorably in *Sanitary Refrigerator*, 280 U.S. at 42, and *Graver Tank*, 339 U.S. at 608. And while not mandating its use, the Court recognized the continued suitability of the function-way-result test for mechanical devices—such as the stents at issue in this case—in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 39-40 (1997).

C. Cordis' "rounded corners" are, at a minimum, equivalent to the "corners" of Boston Scientific's patent.

Patent infringement requires comparison of an accused product with the limitations of a patent claim. *N. Am. Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335, 1344 (Fed. Cir. 2005); *Warner-Jenkinson*, 520 U.S. 520 at 29.

Cordis does not dispute that, at a minimum, the Bx Velocity literally satisfies all of the limitations of claim 36 of the Jang '021 patent other than the "corners" limitation. The only question is whether the "rounded corners" of the Bx Velocity literally or equivalently satisfy that limitation.

Although the district court construed "corners" to mean "a place where two surfaces meet *to form an angle*," the '021 patent specification discloses that "preferably corners 176 and 178 are *rounded* to remove sharp edges and provide increased

flexibility." Under a proper construction of "corners"—which should include the patent's preferred embodiment of "rounded corners"—Cordis' infringement was and is literal and its petition moot.[3]

But even if "rounded corners" are somehow not literally "corners," there was ample evidence adduced at trial that the two structures are substantially equivalent for purposes of the Jang '021 patent. As both the district court and Federal Circuit acknowledged, Boston Scientific offered a step-by-step analysis from its technical expert, Dr. James Moore, to explain how the Bx Velocity stent meets every limitation of claim 36. Pet. App. at 16a, 79a-80a.

Dr. Moore testified that the "rounded corners" in Bx Velocity are, at most, insubstantially different from the patent's "corners." *Id.* at 79a. And he testified that this equivalence was shown by, *inter alia*, application of the function-way-result test, which has repeatedly been endorsed by this Court. Pet. App. at 80a. Cordis did not offer any rebuttal testimony. *Id.*

Certain aspects of the stent art were discussed during prosecution, such as the "tubular members" of Cordis' Palmaz stent. But Dr. Jang never disclaimed

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[3] Boston Scientific filed a conditional cross-appeal of the district court's construction of "corners," arguing that under a proper construction Cordis' infringement is literal. As the Federal Circuit affirmed the verdict of infringement under the doctrine of equivalents, it did not address Boston Scientific's conditional cross-appeal.

"rounded corners." Quite the opposite, Dr. Jang criticized "sharp right angled bends" because they allow for "catching and snagging on the vessel wall during delivery." Cordis' assertion that "Jang preferred angular corners" overlooks this portion of Dr. Jang's patent and is erroneous. Pet. at 11.

In fact, Dr. Jang's "corners" and Cordis' "rounded corners" were treated equivalently during prosecution of the Jang '021 patent. And they were treated as equivalent by Cordis for purposes of its invalidity defenses at trial. No distinction between the two was ever drawn, supporting the jury's determination that the two structures are, at a minimum, equivalent, if not identical.

D. No legal bar to the doctrine of equivalents exists in this case.

Following the jury's verdict of infringement, Cordis filed a post-trial motion arguing for the first time that the doctrine of equivalents should not have applied as a matter of law due to the all-elements rule and the doctrines of vitiation and exclusion.

The all-elements rule bars the doctrine of equivalents where no equivalent structure is identified. *Warner-Jenkinson*, 520 U.S. at 39 n.8. But an equivalent structure was identified in this case—Cordis' "rounded corners." As a result, the district court and Federal Circuit rejected this argument. Pet. App. at 15a-16a, 78a-80a.

The doctrine of vitiation bars the doctrine of equivalents where the theory of infringement removes any meaning from the claim limitation. *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1359 (Fed. Cir. 2005). But the trial evidence

showed a specific function-way-result for the claimed "corners," and proved that Cordis' "rounded corner" provided substantially the same function-way-result. Pet. App. at 80a. This did not remove all meaning from the limitation. For this reason, Cordis' argument regarding vitiation was rejected as well. *Id.* at 78a-80a.

The exclusion doctrine bars the doctrine of equivalents where it would recapture a structure explicitly disclaimed by the patentee. *Honeywell Int'l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1321 (Fed. Cir. 2006). But Dr. Jang never disclaimed "rounded corners." Rather, as discussed above, he expressed a *preference* for them. Thus, this argument by Cordis also failed. Pet. App. at 80a.

E. No bar exists merely because an infringer's equivalent structure was known to be equivalent at the time of patenting.

Having lost on the merits of the doctrine of equivalents, and having lost on its three alleged legal bars to the doctrine of equivalents, Cordis petitions this Court for yet another opportunity to argue for a legal bar to the doctrine of equivalents. Having never timely raised this new argument, Cordis has waived it and it need not be heard on appeal. But even if the Court were to consider Cordis' argument—that the doctrine of equivalents somehow cannot apply to structures known to be equivalent at the time of patenting—that argument fails in light of a century of Supreme Court precedent to the contrary.

1. Cordis waived its argument for such a bar by never raising it at trial.

"Generally, a party who does not clearly and specifically object to a charge . . . believe[d] to be erroneous waives the issue on appeal." *Bostic v. Smyrna School Dist.*, 418 F.3d 355, 359 (3d Cir. 2005); *see also Hormel v. Helvering*, 312 U.S. 552, 556 (1941) ("Ordinarily an appellate court does not give consideration to issues not raised below."). This requirement serves "important policy goals," such as affording the trial court an opportunity to correct errors as well as lessening the judicial burden of post-trial review by excluding newly developed arguments. *See Fashauer v. New Jersey Transit Rail Operations*, 57 F.3d 1269, 1288 (3d Cir. 1995).

The question of infringement of the "corners" limitation under the doctrine of equivalents was explicitly raised in the jury instructions and verdict form, to which Cordis acceded. By failing to object, Cordis waived any right to later dispute the jury's consideration of the doctrine of equivalents. *Cf. B. Braun Med. Inc. v. Abbott Labs.*, 892 F. Supp. 112, 114 (E.D. Pa. 1995) (holding that acquiescence to jury instruction on the doctrine of equivalents waived objection to submitting issue to the jury). Thus, the court need not even address the merits of Cordis' petition.

2. For over 100 years, the Court has applied the doctrine of equivalents to equivalent structures known at the time of patenting.

If considered on the merits, Cordis' Petition should still fail. As stated by this Court over a century ago, infringement under the doctrine of

equivalents is properly found where "the substitute performs the same function *and was well known at the date of the patent as a proper substitute for the one omitted from the patented invention.*" *Fuller v. Yentzer*, 94 U.S. 299, 300 (1876) (emphasis added).

This Court's decisions have repeatedly reaffirmed that holding. *See, e.g.*, *Gould v. Rees*, 82 U.S. 187, 193 (1872) ("Unquestionably the withdrawal of one ingredient in a patented combination and the substitution of another *which was well known at the date of the patent as a proper substitute* . . . would not avoid the charge of infringement.") (emphasis added); *Seymour*, 78 U.S. at 556 (noting that the doctrine of equivalents applies to a substitute "which was well known as a proper substitute . . . *when the former invention was patented.*") (emphasis added); *Clough v. Gilbert & Barker Mfg. Co.*, 106 U.S. 166, 178 (1882) (finding infringement under the doctrine of equivalents where the alterations "perform the same office in substantially the same way as, and *were known equivalents for*, [the patented element]") (emphasis added); *Gill v. Wells*, 89 U.S. 1, 30 (1874) ("[T]he substituted ingredient cannot be regarded as a legal equivalent, within the meaning of the Patent law, unless it performs substantially the same function as the ingredient withdrawn, and *was well known as such an ingredient at the date of the original patent and as a proper substitute for the ingredient which was included in the patented combination.*") (emphasis added); *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1, 13 (1946) (requiring that equivalent structures have been "known at the date of [the] patent as a proper substitute"), *superseded by statute on other grounds*, 35 U.S.C. § 112 ¶ 6, *as recognized in Valmont Indus.*,

Inc. v. Reinke Mfg. Co., 983 F.2d 1039, 1042 (Fed. Cir. 1993); *Graver Tank*, 339 U.S. at 612 (noting that "[i]t is difficult to conceive of a case more appropriate for the doctrine of equivalents" than where "*the infringer's alteration was known at the time of patenting to be an equivalent substitute*" to the claimed element) (emphasis added). As noted in Cordis' Petition, this rule was implicitly reaffirmed most recently in the Court's 1997 decision in *Warner-Jenkinson*. Pet. at 19-20.

In sum, this Court has repeatedly rejected the argument raised in Cordis' Petition for over a century. There is no reason for this Court to change course now.

II. The Court's decision in *Festo* addresses prosecution history estoppel, which is inapposite to this case.

Cordis' argument that a century of this Court's precedent is no longer good law is premised on a misreading of this Court's decision in *Festo*. Pet. App. at 20. According to Cordis, *Festo* "reversed the nineteenth century mode of analyzing" equivalents known at the time of patenting. Pet. at 20. *Festo*, however, addressed the doctrine of prosecution history estoppel, not equivalents in general: "When, however, the patentee originally claimed subject matter alleged to infringe, but then narrowed the claim in response to a rejection, he may not argue that the surrendered territory comprised unforeseen subject matter that should be deemed equivalent." *Festo*, 535 U.S. at 733-34. And it is undisputed that prosecution history estoppel does not apply in this case.

Cordis' argument that *Festo's* "logic applies with equal force" to non-prosecution history estoppel cases and somehow fundamentally altered the doctrine of equivalents ignores the context and explicit language of *Festo*, as well as its admonition that "the doctrine of equivalents and the rules of prosecution history estoppel are settled law. *The responsibility for changing them rests with Congress.*" *Id.* at 739 (emphasis added).

A. Prosecution history estoppel is a narrow limitation on the doctrine of equivalents.

Prosecution history estoppel is a "well-established limitation on the doctrine of equivalents." *Warner-Jenkinson*, 520 U.S. at 18. It dates back to the Court's early decisions on the doctrine:

> It is a rule of patent construction consistently observed that a claim in a patent as allowed must be read and interpreted with reference to claims that have been cancelled or rejected and the claims allowed cannot by construction be read to cover what was thus eliminated from the patent. . . . The patentee may not, by resort to the doctrine of equivalents, give to an allowed claim a scope which it might have had without the amendments, the cancellation of which amounts to a disclaimer. . . . [T]he patentee, having acquiesced in their rejection, is no longer free to gain the supposed advantage of the rejected claims by a construction of the allowed claims as equivalent to them.

Schriber-Schroth Co. v. Cleveland Trust Co., 311 U.S. 211, 220-222 (1940).

It is the act of amending a claim during prosecution that creates an affirmative *surrender* of patent scope on which the public is entitled to rely. *Exhibit Supply Co. v. Ace Patents Corp.*, 315 U.S. 126, 136 (1942) ("By the amendment [the patentee] recognized and emphasized the difference between the two phrases and proclaimed his abandonment of all that is embraced in that difference."). The estoppel has a specific purpose—to ensure that the patent claims are interpreted by reference to those claims "that have been cancelled or rejected"—and applies only to the situation where "the original application once embraced the purported equivalent but the patentee narrowed his claims [during prosecution] to obtain the patent or to protect its validity." *Festo*, 535 U.S. at 733-734 (citing *Schriber-Schroth*, 311 U.S. at 220-221).

The bases and application of prosecution history estoppel are different from those relating to the doctrine of equivalents as applied to unamended claims. *See, e.g., Exhibit Supply,* 315 U.S. at 136. Inclusion of a "limiting phrase" in the original patent application presents a "*very different issue*" from the situation in which "the applicant in order to meet objections in the Patent Office . . . adopted the [narrower] phase as a substitute for the broader one." *Id.* (emphasis added). "By the amendment he recognized and emphasized the difference between the two phrases and *proclaimed his abandonment* of all that is embraced in that difference." *Id.* (emphasis added). Where the patentee explicitly disclaims patent scope in order to distinguish the prior art, the amended claim must be "strictly construed" against him. *Id.* at 137. But no such

rule applies to unamended claims, or to those without such an explicit surrender of scope.

B. The question presented in *Festo* was the applicable test for prosecution history estoppel.

In *Festo*, this Court reviewed the Federal Circuit's holding that "by narrowing a claim to obtain a patent, the patentee surrenders *all* equivalents to the amended claimed element." 535 U.S. at 727 (emphasis added). This inquiry presented two specific questions: "the first question in this case concerns *the kinds of amendments that may give rise to estoppel*"; and the second question was "[d]oes the estoppel bar the inventor from asserting infringement against any equivalent *to the narrowed element* or might some equivalents still infringe?" *Id.* at 735-737 (emphasis added). The underlying Petition in *Festo* phrased the two questions similarly: "1) Whether every *claim—narrowing amendment* designed to comply with any provision of the Patent Act—including those provisions not related to prior art—automatically creates prosecution history estoppel regardless of the reason for the amendment; and 2) Whether *the finding of prosecution history estoppel* completely bars the application of the doctrine of equivalents." Petition for Writ of Certiorari at 1, *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722 (2002) (No. 00-1543), 2001 WL 34091958 (emphases added). Both questions explicitly address prosecution history estoppel. Neither addresses patent claims granted without narrowing amendments, as in this case. *See* Sup. Ct. R. 14.1(a) ("Only the questions set forth in

the petition, or fairly included therein, will be considered by the Court.").

Cordis cites no authority to support its argument that *Festo* is "applicable to *all* claim limitations," rather than only to claim limitations that were narrowed during prosecution. Cordis also fails to provide any support for its argument that *Festo* somehow "calls into question" *Warner-Jenkinson's* continuation of the rule that the doctrine of equivalents applies to equivalents known at the time of patenting. Pet. at 20.

Festo cautions against adopting the type of bright-line rule advocated by Cordis, warning that it would "provide[] more certainty . . . but at the cost of disrupting the expectations of countless existing patent holders." *Festo*, 535 U.S. at 739. *Festo* also emphasizes that "[f]undamental alterations" in settled rules would "risk destroying the legitimate expectations of inventors in their property." *Id.* *Festo* explicitly left such sweeping changes to the doctrine of equivalents in the hands of Congress. *Id.*

Notably, *Festo* affirmed the central tenet of the doctrine of equivalents—that some flexibility in the scope of a patent is necessary to afford value to the patent grant and to prevent "efforts of copyists to evade liability for infringement by making only insubstantial changes to a patented invention." *Id.* at 727. Thus, *Festo* affirmed that the doctrine of equivalents properly applies in cases such as this one.

C. Cordis' reading of *Festo* is not supported by caselaw or commentary.

For at least 60 years, this Court has consistently distinguished between patent claims that had been amended during prosecution and those that had not for purposes of the doctrine of equivalents. *See, e.g.*, *Exhibit Supply*, 315 U.S. at 136 ("Whatever may be the appropriate scope and application of the doctrine of equivalents where a claim is allowed without a restrictive amendment, it has long been settled that recourse may not be had to that doctrine to recapture claims which the patentee had surrendered by amendment."). *Festo* explicitly addressed the former. Given the long-standing distinction between the two, there is no basis to read *Festo* as also somehow implicitly addressing the latter.

Notably, no case supports Cordis' reading of *Festo*. The Federal Circuit has cited *Festo* for controlling law only on issues related to prosecution history estoppel. *See, e.g., Felix v. American Honda Motor Co.*, 562 F.3d 1167, 1181-82 (Fed. Cir. 2009) (citing *Festo* for law on presumptions created by amendment-based prosecution history estoppel); *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1344 (Fed. Cir. 2005) (citing *Festo* for the proposition that "[t]he doctrine of prosecution history estoppel serves to limit the doctrine of equivalents when the applicant makes a narrowing amendment for purposes of patentability"); *Regents of Univ. of Cal. v. Dakocytomation Cal., Inc.*, 517 F.3d 1364, 1376 (Fed. Cir. 2008) (citing the requirements set forth by *Festo* to support its holding that the district court erred by applying prosecution history estoppel to the claim limitation); *Honeywell Int'l Inc. v. Hamilton*

Sundstrand Corp., 370 F.3d 1131, 1139-1140 (Fed. Cir. 2004) (citing *Festo* for controlling law on prosecution history estoppel).

Legal commentary has also cited *Festo* as controlling law only for prosecution history estoppel issues. *See, e.g.*, Donald S. Chisum, Chisum on Patents § 18.02[6] (2009) ("In *Festo*, the Court addressed the relationship between the doctrine of equivalents and prosecution history estoppel."). 4 R. Carl Moy, Moy's Walker on Patents § 13:77 (4th ed.) (citing *Festo* in support of prosecution history estoppel as an affirmative defense to infringement under the doctrine of equivalents).

Courts have rejected arguments to expand the scope of *Festo's* holdings beyond prosecution history estoppel. *See, e.g., A.G. Design & Assoc. LLC v. Trainman Lantern Co.*, 271 Fed. Appx. 995, 998 (Fed. Cir. 2008) (separating "*Festo* prosecution history estoppel tangential rebuttal analysis" from the "doctrine of equivalents function-way-result test") (unpublished); *Dethmers Mfg. Co. v. Automatic Equipment Mfg. Co.*, 299 F.Supp.2d 903, 918 (N.D. Iowa 2004) (rejecting argument that *Festo* applies to the "recapture rule").

The only court known to Respondents to have addressed Cordis' proposed reading of *Festo* as barring application of the doctrine of equivalents to equivalents known at the time of patenting rejected such an interpretation. In *Ranbaxy Laboratories Ltd. v. Abbott Laboratories*, the defendant argued that:

> [T]he *Festo* doctrine bars application of the doctrine of equivalents because [the alleged equivalents] were well-known in the

> pharmaceutical art at the time the patent application was filed. Thus, the patent specification and/or claims could have included such substances. Because the inventors did not include them, they cannot be considered equivalent . . . .

No. 04 C 8078, 05 C 1490, 2005 WL 3050608, *21 (N.D. Ill. Nov. 10, 2005), *aff'd sub. nom.*, *Abbott Labs. v. Andrx Pharmaceuticals, Inc.*, 473 F.3d 1196 (Fed. Cir. 2007). The district court rejected the argument, stating that "[t]he Festo doctrine only applies when a claim has been amended and thereby narrowed during patent prosecution." *Id.* No caselaw has held to the contrary.

Cordis' reliance on the Federal Circuit's decision in *Freedman Seating Co. v. American Seating Co.* is inapposite. That case addressed the doctrine of vitiation—a doctrine Cordis unsuccessfully raised before the district court and Federal Circuit but did not raise in its Petition. *Freedman Seating*, 420 F.3d at 1361-62. Briefly, that case concerned a claim limitation requiring that a structure be "slidably mounted" and an accused product in which the corresponding structure "cannot slide or otherwise move . . . [i]t is confined to a fixed location." *Id.* The Federal Circuit found that this "is not a 'subtle difference in degree,' but rather, 'a clear, substantial difference or difference in kind.'" *Id.* (citation omitted). Although the opinion discussed the patentee's awareness of the alleged equivalents at the time of patenting, *e.g.*, *id.* at 1362, this fact was inapposite to the holding. It was the issue of vitiation—a removal of any meaning of the claim

limitation—that was the basis for the court's decision. *Id.* at 1361.

Cordis' reliance on *Sage Products., Inc., v, Devon Industries, Inc.*, 126 F.3d 1420 (Fed. Cir. 1997) is similarly misplaced. In that case, the Federal Circuit affirmed summary judgment of noninfringement where the factual record showed that two claim limitations were not present in the accused device, either literally *or equivalently*: "The record does not show that Sage presented any perspective on Devon's accused products that simultaneously satisfied an insubstantial variation of both of these limitations." *Id.* at 1424. It was not a question of whether alleged equivalents were known at the time of patenting. Rather, the issue was a lack of evidence of equivalence. *Id.*

Confronted with this fact, the appellant proffered a second theory of equivalence purportedly based on the entire claim, but divorced from the claim's limitations. The Federal Circuit rejected this approach because "the doctrine of equivalents does not grant Sage license to remove entirely the [two] limitations from the claim." *Id.* at 1424. Again the issue was vitiation—whether the claim limitation was being ignored—rather than whether an alleged equivalent was known at the time of patenting. *Id.* at 1424-25.

Sage Products does not evidence any confusion by the Federal Circuit with respect to the doctrine of equivalents. The issue raised therein was squarely addressed by this Court in *Warner-Jenkinson*, which similarly held that the doctrine of equivalents properly applies to *limitations* of a patent claim, rather than the invention as a whole. 520 U.S. at 29-

30. This precedent is inapposite to Cordis' Petition because Boston Scientific properly presented a doctrine of equivalents case for a specific limitation—"corners"—rather than for the claim as a whole. Notably, Cordis previously raised a vitiation defense but it was rejected by the district court and Federal Circuit, and is no longer at issue.

III. Cordis' Petition addresses a matter of private interest with no broader implications for the Court's established precedent.

Cordis argues that application of the doctrine of equivalents to interchangeable substitutes that were known at the time of patenting—as allegedly occurred in this case—"creates uncertainty about the scope of patent protection" which somehow "can impede legitimate competition." Pet. at 3. But the doctrine of equivalents has always extended a patent scope beyond its strict, literal terms. *See Festo*, 535 U.S. at 732 ("The scope of a patent is not limited to its literal terms but instead embraces all equivalents to the claims described."); *LG Elecs., Inc. v. Bizcom Elecs., Inc.*, 453 F.3d 1364, 1380 (Fed. Cir. 2006), (noting that the doctrine of equivalents, "by its very nature, extends beyond the patent's literal claim scope because otherwise a finding of no literal infringement would be a foreordained conclusion of no infringement at all"), *rev'd sub nom. on other grounds, Quanta Computer, Inc. v. LG Elecs., Inc.*, 128 S. Ct. 2109 (2008). This case is thus no different than every other doctrine of equivalents case that has come before the Court in the last 150 years.

In essence, Cordis ask this Court to reverse 150 years of its precedent and change the balance struck

by the doctrine of equivalents—a task this Court has repeatedly declined in deference to Congress. *See Festo*, 535 U.S. at 739; *Warner-Jenkinson*, 520 U.S. at 28. While this case may address a matter of private interest as between the parties, it offers nothing new to alter this Court's longstanding doctrine of equivalents precedent:

> It is true that the doctrine of equivalents renders the scope of patents less certain. . . . These concerns with the doctrine of equivalents, however, are not new. Each time the Court has considered the doctrine, it has acknowledged this uncertainty as the price of ensuring the appropriate incentives for innovation, and it has affirmed the doctrine over dissents that urged a more certain rule. . . . More recently, in *Warner-Jenkinson*, the Court reaffirmed that equivalents remain a firmly entrenched part of the settled rights protected by the patent. A unanimous opinion concluded that if the doctrine is to be discarded, it is Congress and not the Court that should do so.

Festo, 535 U.S. at 732-33.

Cordis' policy arguments were considered, and resolved, over 150 years ago when this Court first articulated the modern doctrine of equivalents:

> Will this [equivalent] be the limit to that claim? Who can tell the bounds within which the mechanical industry of the country may freely exert itself? What restraints does this patent impose in this branch of mechanic art?

Winans, 56 U.S. at 347 (J., Campbell, dissenting). Those fears were acknowledged, and overcome, by the Court's majority opinion. And as discussed herein, every decision by this Court since *Winans* has reaffirmed the conclusion that the benefits of preserving a patent's value outweigh the potential reduction of certainty as to the patent's scope.

Cordis' warnings of unbridled application of the doctrine of equivalents overlooks the limited role of the doctrine. As discussed above, it can only apply to a specific claim limitation and not to the invention as a whole—all of the other limitations of a patent claim must still be literally present in the accused product. *See Warner-Jenkinson*, 520 U.S. at 29 (noting that equivalency only applies to specific elements and not to the overall invention). It cannot be used to vitiate a claim limitation. *Freedman Seating,* 420 F.3d at 1359. It cannot be used if the equivalent structure was disclaimed by the patentee. *ITT Indus.*, 452 F.3d at 1321. And, as this Court held in *Festo*, it presumptively cannot be used for elements added during prosecution to distinguish prior art. *Festo*, 535 U.S. at 740-41.

But most importantly, the doctrine of equivalents does not apply unless the accused product contains an *equivalent* structure. Plaintiffs bear the burden of proving this equivalence by a preponderance of the evidence. *Datascope Corp. v. SMEC, Inc.*, 776 F.2d 320, 325 (Fed. Cir. 1985).

For example, in this case, it required proof by a preponderance of the evidence that Cordis' "rounded corners" performed substantially the same function in substantially the same way to achieve substantially the same result as the "corners"

claimed in the Jang '021 patent. This proof of equivalence was not contested at trial—Pet. App. at 80a—and is not contested in Cordis' Petition.

These safeguards prevent the doctrine of equivalents from running roughshod over legitimate competition and implicating the policy concerns cited by Cordis. And in any event, as this Court has repeatedly affirmed for 150 years, any uncertainty engendered by the doctrine of equivalents is necessary lest the law "encourage [] the unscrupulous copyist to make unimportant and insubstantial changes and substitutions." *Graver Tank*, 339 U.S. at 607.

The private dispute presented by Cordis' Petition falls squarely within controlling law. Having met with Dr. Jang and learned of his stent designs, Cordis launched a new product that literally embodied every claim limitation, with the sole exception that its "rounded corners" are somehow allegedly different than the patent's "corners." Cordis does not dispute that any such difference is "unimportant and unsubstantial." Nor does Cordis dispute that the two structures are equivalent under the "function-way-result" test. By attempting to bar recourse to the doctrine of equivalents in this case, Cordis seeks to frustrate the very policy on which the doctrine was founded.

While the Court's review of the merits of this case may be of interest to Cordis and Boston Scientific, nothing in Cordis' Petition provides the opportunity for the Court to speak beyond what it has already clearly and repeatedly expressed over the last 150 years. Cordis' Petition is properly denied.

CONCLUSION

For all of the foregoing reasons, Respondents respectfully submit that this Court should deny Cordis' petition for writ of certiorari.

October 29, 2009

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IN THE

Supreme Court of the United States

CORDIS CORPORATION,

Petitioner,

v.

BOSTON SCIENTIFIC CORP. and
BOSTON SCIENTIFIC SCIMED, INC.,

Respondents.

ON PETITION FOR A WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

REPLY BRIEF

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IN THE SUPREME COURT OF THE UNITED STATES

No. 09-365

CORDIS CORPORATION,

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v.

BOSTON SCIENTIFIC CORPORATION AND BOSTON SCIENTIFIC SCIMED, INC.,

Respondents.

REPLY ON PETITION FOR WRIT OF CERTIORARI

Petitioner Cordis Corporation ("Cordis") respectfully submits this Reply in further support of its petition for a writ of certiorari.

I. BSC Cannot Reconcile the Conflict in the Federal Circuit's Decisions

As Cordis has demonstrated, decisions by the Federal Circuit are in direct conflict on an important issue: Is it proper to apply the doctrine of equivalents ("DOE") for an allegedly equivalent feature that was known in the art and known to the inventor at the time of patenting as a substitute for a feature described in the claim, where the inventor

could readily have drafted and applied for claims that literally cover this known alternative, but did not do so?

Federal Circuit decisions offer conflicting answers to this question.

Under some Federal Circuit decisions, the answer to this question is "yes." *E.g.*, *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1336 (Fed. Cir. 2009); *Interactive Pictures Corp. v. Infinite Pictures, Inc.*, 274 F.3d 1371, 1383 (Fed. Cir. 2001); *Overhead Door Corp. v. Chamberlain Group, Inc.*, 194 F.3d 1261, 1269 (Fed. Cir. 1999). Under these decisions, it is acceptable to assert the DOE for a feature that was known at the time of patenting as a substitute for an element described in the claim, even though the patentee drafted the claim more narrowly so that it does not literally cover the known alternative.

Under other Federal Circuit decisions, the answer to the same question is "no." For example, in *Sage Products, Inc. v. Devon Industries, Inc.*, 126 F.3d 1420 (Fed. Cir. 1997), the Federal Circuit stated that where certain structures were known at the time of patenting as interchangeable, "[a] skilled patent drafter would foresee the limiting potential" of drafting claims in a way that literally covers only one of the known alternatives. *Id.* at 1425. The Federal Circuit held that in such circumstances the DOE may not be asserted to cover the other known alternative because "as between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek

protection for this foreseeable alteration of its claimed structure." *Id.*

Similarly, in *Freedman Seating Co. v. American Seating Co.*, 420 F.3d 1350 (Fed. Cir. 2005), the Federal Circuit held that where a patentee was "aware" at the time of patenting that certain structures were interchangeable, but drafted the claims narrowly so as to literally cover only one of the known alternatives, then "[m]embers of the public [are] ... justified in relying on this specific language in assessing the bounds of the claim," and applying the DOE for the other known alternative "would unjustly undermine the reasonable expectations of the public." *Id.* at 1360-62.

BSC pretends that the conflict between these diverging lines of Federal Circuit decisions does not exist. But that conflict cannot be overlooked.

Moreover, this conflict in the Federal Circuit's cases reflects a tension in this Court's own decisions. In older decisions, this Court treated the DOE as applicable for features that were known at the time of patenting as substitutes for an element described in the patent claim, but as inapplicable for substitutes that were unforeseeable at the time the patent issued. *See, e.g.*, *Gould v. Rees*, 82 U.S. 187, 193 (1872), *Gill v. Wells*, 89 U.S. 1, 13 (1874), *Fuller v. Yentzer*, 94 U.S. 299, 300 (1876), and

Festo Corp. v. Shoteksu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722 (2002), takes a very different approach, akin to the one the Federal Circuit adopted in *Sage* and *Freedman Seating*. As this Court explained in *Festo*, "[t]he patentee, as the

author of the claim language, may be expected to draft claims encompassing readily known equivalents." *Id.* at 740; *see also id.* at 741 ("The patentee must show that at the time of the amendment one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent.").

As Cordis previously noted, *Festo* only addressed claim terms that were amended during prosecution. This Court has not yet had occasion to rule on whether *Festo*'s reasoning has more general applicability. However, Cordis respectfully submits that *Festo*'s logic has the same merit *both* for claim language that was amended during prosecution *and* for claim language that was not so amended. *Festo*'s recognition that "[t]he patentee, as the author of the claim language, may be expected to draft claims encompassing already known equivalents," 535 U.S. at 740, is as true for original claims as it is for claims that were amended during patent prosecution. A Federal Circuit panel took that view in *Glaxo Wellcome, Inc. v. Impax Laboratories, Inc.*, 356 F.3d 1348 (Fed. Cir. 2004), when it stated, with respect to the DOE, that "the critical inquiry is whether [the patentee] could have foreseen [the alleged equivalent] *at the time of filing or amendment.*" *Id.* at 1355 (emphasis added); *see also Sage*, 126 F.3d 1420, and *Freedman Seating*, 420 F.3d 1350.

II. The Issue Presented Has Importance Well Beyond the Parties to the Case

Resolving the conflict in Federal Circuit cases is a matter of great importance. As this Court

recognized in *Festo*, the DOE "renders the scope of patents less certain," 535 U.S. at 732, because "[i]t may be difficult to determine what is, or is not, an equivalent to a particular element of an invention." *Id.* This "zone of uncertainty" as to the scope of patent protection has a chilling effect on competitive activity and may "discourage invention ...." *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236 (1942). This uncertainty is only heightened where, as here, there is a direct conflict in the Federal Circuit's cases.

Reducing uncertainty on this issue would benefit the public and benefit patentees by promoting legitimate competition and avoiding unnecessary disputes about the scope of patent protection. *Festo*, 535 U.S. at 732.; *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996).

III. BSC Does Not Dispute the Facts That Make This Case an Appropriate Vehicle for Resolving the Issue

BSC does not – and cannot – dispute *any* of the facts that make this an appropriate vehicle for resolving the question.

First, BSC does not dispute that when the claims of its patent were drafted, it was well known in the art that a stent's rings could *either* have corners *or* circular arcs and no corners.

Second, BSC does not dispute that the inventor of its patent knew this when the claims were drafted. Indeed, he cited examples of both

types of designs when he discussed the prior art in his patent specification.

Third, with both types of designs known in the art, BSC does not dispute that a skilled patent draftsman would have perceived the limiting potential of drafting the claims to require "corners."

Fourth, BSC does not dispute that the inventor could have drafted and applied for claims covering both types of designs had he chosen to do so.

Fifth, although both alternatives were known in the art and known to the inventor, BSC does not dispute that the inventor chose to limit claim 36 to stents with "corners."

Sixth, BSC cannot dispute that Cordis's stents lack the "corners" required by the claim. The jury's unchallenged verdict of no literal infringement establishes that Cordis's stents do not have "corners" under the unchallenged claim construction. Instead, they have circular arcs.

There is no dispute as to any of these facts. The Federal Circuit's decision upheld BSC's assertion of the DOE for a feature that was known in the art and known to the inventor at the time of patenting as a substitute for a feature described in the claims, but outside the literal scope of the claims as drafted.

Federal Circuit cases are in conflict on whether the DOE is available in these circumstances. The undisputed facts make this case

an appropriate vehicle for resolving this conflict in the Federal Circuit's cases.

IV. Instead of Addressing the Issues, BSC Offers Smokescreens

Instead of addressing the conflict in the Federal Circuit's cases, BSC offers baseless smokescreens.

A. As the Trial Judge Recognized, the Record Refutes BSC's Insinuation of Copying

Running through BSC's opposition is a baseless and unsupported insinuation that Cordis copied Dr. Jang's invention. The trial judge repeatedly "chastis[ed]" BSC for offering the same insinuation at trial in the absence of any evidence supporting it. Tr. 1705:3-5.

During the trial, BSC tried to depict Cordis as a copyist. The trial judge repeatedly rejected those efforts because – as the trial judge emphasized – there was "no evidence of copying," Tr. 1703:10-12, and "no allegation in the case having to do with copying." Tr. 1045:24-25. As the trial judge stated, there is "no proof here" of copying (Tr. 1713:20-1714:1) and "no proof that the individual who designed ... the accused stent had any knowledge of Dr. Jang." Tr. 1708:14-16.

Despite the trial judge's repeated admonitions, BSC's counsel ended his closing argument by insinuating that Cordis had copied Dr. Jang's

invention. Without waiting for Cordis to object, the trial judge *sua sponte* stated that BSC's insinuation "leaves the wrong impression" (Tr. 1703:10-12) because "there's no evidence of copying." *Id.* The trial judge admonished BSC's counsel for offering this baseless accusation and stated that "I've been chastising you for [this] since the beginning [of the case]." Tr. 1705:3-5

BSC now repeats the same baseless insinuations of copying in its submission to this Court. That tactic is just as improper now as it was at trial.

B. The Issue Was Preserved

BSC offers another smokescreen when it asserts that the issue was not preserved by Cordis in the trial court. BSC did not offer this assertion in the district court or on appeal. It is incorrect on the facts and on the law.

During the trial, Cordis moved for JMOL before the close of the evidence. Cordis's counsel identified the "one DOE issue in the case and that's corners of Claim 36 of the Jang patent." Tr. 1185:17-19. He asserted that there was "an utter failure of proof on infringement ...." Tr. 1185:24-1186:1. The trial then stated: "For purposes of the record, the JMOL is denied." Tr. 1187:16-17.

Cordis's JMOL motion during the trial adequately preserved the issue for post-trial review and for a later appeal. *Texas Instruments, Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1566, n.6 (Fed. Cir. 1996); *Malta v. Schulmerich Carillons,*

Inc., 952 F.2d 1320, (Fed. Cir. 1991). BSC did not argue otherwise when it opposed Cordis's renewed JMOL motion, and did not argue otherwise on appeal.

Moreover, BSC waived any objection it might have had to the specificity of Cordis's JMOL motion during the trial because BSC did not make any such objection at trial. *See Chainey v. Street*, 523 F.3d 200, 218 (3d Cir. 2008) (party's failure to object to the adequacy of a Rule 50(a) motion waived its objection on that basis in future proceedings); *Marfia v. T.C. Ziraat Bankasi*, 147 F.3d 83, 87 (2d Cir. 1998) ("by failing to object before the district court [plaintiff] waived his objection to the defendant's JMOL motion"); *Cox v. City of Freeman*, 321 F.2d 887, 891 (8th Cir. 1963) (same).

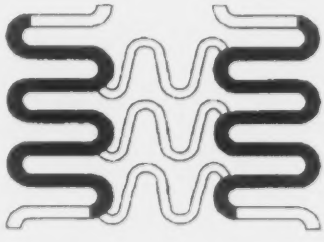
In its renewed motion for JMOL and again on appeal, Cordis relied on *Sage Products*, 126 F.3d at 1425, and *Freedman Seating*, 420 F.3d at 1360. It argued that "[w]ith both types of stents known in the art and known to the inventor, '[a] skilled patent drafter would foresee the limiting potential of the ['corners'] limitation' and could have drafted a claim without the "corners" limitation if he 'desired broad[er] patent protection.'" (quoting *Freedman Seating*, 420 F.3d at 1360, which in turn quotes *Sage Products*, 126 F.3d at 1425). Cordis further argued that "in assessing the bounds of the claim," competitors "were 'justified'" in relying on the fact that the inventor was aware of both alternatives but limited claim 36 to stents with "corners." *See* Pet. at 13-14.

On this record, there is no basis for BSC to suggest that Cordis failed to preserve this issue.

C. BSC's Assertion That Cordis's Stents Have "Rounded Corners"

BSC offers another smokescreen when it argues that Cordis's stents have "rounded corners" and that the "rounded corners" in Cordis's stents are insubstantially different from the "corners" required by claim 36. The verdict of no literal infringement defeats that assertion.

"Rounded corners" are a type of "corner." If the jury thought that Cordis's stents had "rounded corners" (or any other type of corner) then it would have returned a verdict of literal infringement. It did not do so. Instead, it returned a verdict of no literal infringement – a verdict that BSC has never challenged. In rendering its verdict of no literal infringement, the jury agreed with Cordis's expert that the rings of Cordis's stents have purely circular arcs, rather than the "corners" required by the claim.



* * *

As discussed above, it was known in the art – and known to the inventor at the time of patenting – that a stent's rings could have *either* "corners" *or* circular arcs. The inventor could have drafted claims covering both of these known alternatives, but chose

to draft claim 36 more narrowly, as limited to stents with "corners."

Federal Circuit decisions such as *Sage*, 126 F.3d at 1425, and *Freedman Seating*, 420 F.3d at 1360-62, hold that the DOE is inapplicable in these circumstances and that its application would "unjustly undermine the reasonable expectations of the public." *Id.* at 1362. Yet that is what the Federal Circuit did here. This Court should grant certiorari to resolve the conflict in the Federal Circuit's cases on whether application of the DOE is appropriate in such circumstances.

CONCLUSION

For the reasons set forth above and in the petition for a writ of certiorari, this Court should issue the writ to resolve the important issue presented by this petition.

Respectfully submitted,

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